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## ABSTRACT

The characteristics of selected U.S. citizens studying medicine abroad have been considered in this study from the perspective of their academic levels and their demographic origins. From these viewpoints, a definite profile emerges of the average student who was sponsored for Part 1 of the National Board of Medical Examiners (NBME) tests by the Coordinated Transfer Application System (COTRANS) during 1975. Emphasis in this study was placed on some specific objectives: (1) to review COTRANS sponsorships; (2) to analyze Part 1, NBME test results by overall score distribution, first-time and repeat status, sex, and country of location of the foreign medical school; (3) to describe the academic background of 1975 COTRANS participants in terms of MCAT scores and undergraduate grade point averages, as derived from previous applications to medical schools, and to compare the 1975 COTRANS group with the 1973-74 U.S. medical school applicant pool; (4) to describe the biographic and socioeconomic background of 1975 COTRANS participants (including their undergraduate college origins) and to compare these characteristics with those of the 1973-74 applicant pool; and (5) to identify career preferences with regard to general career activity, specialization plans, and expected character of medical practice of the 1975 COTRANS group with comparable career preferences of the 1973-74 group. (Author/MSE)

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# CHARACTERISTICS OF U.S. CITIZENS SEEKING TRANSFER FROM FOREIGN TO U.S. MEDICAL SCHOOLS IN 1975 VIA THE COORDINATED TRANSFER APPLICATION SYSTEM (COTRANS)

## FINAL REPORT

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THE COORDINATED TRANSFER APPLICATION SYSTEM (COTRANS)

W. F. DUBÉ

DIVISION OF STUDENT STUDIES  
ASSOCIATION OF AMERICAN MEDICAL COLLEGES

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FEBRUARY 1977

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# TABLE OF CONTENTS

	Page
List of Tables . . . . .	v
Executive Summary . . . . .	ix
I. INTRODUCTION . . . . .	1
II. METHODOLOGY . . . . .	3
A. Data Sources . . . . .	3
1. Eligibility Summaries . . . . .	3
2. Part I, NBME Summaries . . . . .	3
3. COTRANS Data File . . . . .	4
a. Automated COTRANS File . . . . .	4
b. Medical Student Information System . . . . .	4
c. Comparison Data . . . . .	5
B. Major Study Variables . . . . .	5
C. COTRANS Participants with U.S. Applicant Records . . . . .	5
D. Production of Data . . . . .	6
E. Statistical Analyses . . . . .	6
F. Limitations of Study . . . . .	6
III. RESULTS AND DISCUSSION	
A. Applicants and Admissions . . . . .	9
1. Eligible Applicants and Examinees . . . . .	9
2. COTRANS-Sponsored Examinees . . . . .	10
3. Advanced Standing Admissions to U.S. Medical Schools . . . . .	11
4. COTRANS Candidates Who Were U.S. Medical School Applicants . . . . .	12
5. Applicants to U.S. Medical Schools . . . . .	14

	Page
B. Part I, NBME Test Performance . . . . .	16
1. Participants . . . . .	16
a. First-Time and Repeat Applicants . . . . .	16
b. First-Time and Repeat Examinees . . . . .	17
c. Pass Rates by Country . . . . .	17
2. Part I, NBME Results . . . . .	19
a. Test Scores by Pass/Fail . . . . .	19
b. Test Scores by Subject Area . . . . .	21
c. Test Scores by Sex . . . . .	21
d. Distribution of Passing Scores . . . . .	22
e. First-Time and Repeat Mean Scores . . . . .	24
3. Correlations . . . . .	24
a. MCAT Science and Part I, NBME . . . . .	26
b. MCAT Quantitative and Part I, NBME . . . . .	28
c. MCAT Verbal Ability and Part I, NBME . . . . .	28
d. MCAT General Information and Part I, NBME . . . . .	28
C. Academic Background . . . . .	32
1. Ability Levels: MCAT and GPA . . . . .	32
a. Comparison of Ability Levels . . . . .	32
b. Application Frequencies . . . . .	32
2. Undergraduate Origin by Type of College . . . . .	35
a. Public/Private Control . . . . .	35
b. Regional Location . . . . .	35
c. Origin by Foreign Country . . . . .	37
3. Distribution by GPA and MCAT Science Score Quadrants . . . . .	37
a. 1975 COTRANS Data . . . . .	37
b. 1975 COTRANS Group versus 1973-74 Applicant Pool . . . . .	42
c. COTRANS Candidates in Quadrant I . . . . .	42

	Page
D. Demographic Information . . . . .	43
1. State of Residence . . . . .	43
a. COTRANS-Sponsored Examinees . . . . .	43
b. Part I, NBME Performance . . . . .	43
2. Age Distribution . . . . .	46
a. Overview . . . . .	46
b. Comparison of Ages by Sex . . . . .	46
3. Self-Description . . . . .	48
a. Overview . . . . .	48
b. 1975 COTRANS Group versus 1973-74 Applicant Pool . . . . .	49
c. Distribution by Country of Medical School . . . . .	49
d. Part I, NBME Performance . . . . .	49
4. Parental Income . . . . .	52
a. Overview . . . . .	52
b. Income Distribution . . . . .	52
c. Income Medians . . . . .	54
5. Father's Occupation . . . . .	56
E. Career Plans . . . . .	60
1. Career Activity Plans . . . . .	60
2. Specialization Plans . . . . .	60
3. Expected Character of Medical Practice . . . . .	64
IV. SUMMARY AND CONCLUSIONS . . . . .	71
Bibliography . . . . .	73
Glossary . . . . .	75
APPENDIX: 1975 COTRANS Application . . . . .	77



# List of Tables

	Page
Table 1: Summary of Applicant and NBME Part I Testing Activity of COTRANS-Sponsored Examinees, 1970 Through 1975 . . . . .	10
Table 2: Summary of Admissions of COTRANS-Sponsored Examinees 1970 Through 1975 . . . . .	11
Table 3: COTRANS-Sponsored Candidates for Part I of the 1975 NBME Examinations by Sex and by Previous Applicant Activity for First-Year Classes of U.S. Medical Schools: 1972-73 and 1973-74 . . . . .	13
Table 4: Summary of Application Activity of Applicants to U.S. Medical Schools 1970-71 Through 1975-76 . . . . .	15
Table 5: Comparative Pass Rates, by Sex, for First-Time and Repeat COTRANS-Sponsored Examinees, Part I of 1975 NBME Examinations . . . . .	16
Table 6: Test Performance of COTRANS-Sponsored Examinees Part I, NBME 1975, by Country of Foreign Medical School . . . . .	18
Table 7: Mean Scores, Part I of 1975 NBME Examinations of COTRANS-Sponsored Examinees and of Total 1975 NBME Candidate Group from U.S. Schools . . . . .	20
Table 8: Mean Scores, by Sex, Part I of the 1975 NBME Examinations of COTRANS-Sponsored Examinees . . . . .	22
Table 9: Distribution of COTRANS-Sponsored Examinees Who Passed Part I, 1975 NBME Examinations by Level of Total Scores and by Country of Foreign Medical School. . . . .	23
Table 10: Mean Scores of Passing COTRANS-Sponsored Examinees Part I, NBME 1975, by First-Time and Repeat Status and by Country of Foreign Medical School . . . . .	25
Table 11: Correlation Coefficients Between MCAT Science Scores and Part I of 1975 NBME Examinations Total Scores of All COTRANS-Sponsored Examinees by Country of Foreign Medical School . . . . .	27

Table 12:	Correlation Coefficients Between MCAT Quantitative Scores and Part I of 1975 NBME Examinations Total Scores of All COTRANS-Sponsored Examinees by Country of Foreign Medical School . . . . .	29
Table 13:	Correlation Coefficients Between MCAT Verbal Ability Scores and Part I of 1975 NBME Examinations Total Scores of All COTRANS-Sponsored Examinees by Country of Foreign Medical School . . . . .	30
Table 14:	Correlation Coefficients Between MCAT General Information Scores and Part I of 1975 NBME Examinations Total Scores of All COTRANS-Sponsored Examinees by Country of Foreign Medical School . . . . .	31
Table 15:	Comparison of Mean Scores of MCAT Subtests and Mean Grade Point Averages of COTRANS-Sponsored Examinees, Part I of 1975 NBME Examinations with Applicants to U.S. Medical Schools, 1973-74 First-Year Class . . . . .	33
Table 16:	Application Frequency and Ability Levels of 1975 COTRANS-Sponsored Examinees Who Applied to U.S. Medical Schools, 1973-74 First-Year Class. . . . .	34
Table 17:	Comparison of Pass Rates, Part I of 1975 NBME Examinations of COTRANS-Sponsored Examinees by Control of Undergraduate Institution. . . . .	36
Table 18:	Undergraduate Colleges Attended by COTRANS-Sponsored Examinees, Part I of 1975 NBME Examinations by Region, Control of School, Sex, and Pass Rate . . . . .	38
Table 19:	Distribution of COTRANS-Sponsored Examinees by Country of Foreign Medical School and by Undergraduate School, 1975 Test Year. . . . .	40
Table 20:	Distribution of Applicants and Acceptees by Undergraduate College Overall Grade Point Average and by MCAT Science Subtest Scores, 1973-74 First-Year Class for Comparison with the 1975 COTRANS-Sponsored Candidates . . . . .	41
Table 21:	Distribution of COTRANS-Sponsored Examinees, Part I of 1975 NBME Examinations by State of Residence . . . . .	44
Table 22:	Pass Rates of COTRANS-Sponsored Examinees, by Age and by Sex, Part I of 1975 NBME Examinations . . . . .	47

Table 23:	Comparison of 1975 COTRANS-Sponsored Examinees with Applicants to U.S. Medical Schools, 1973-74 First-Year Class by Percentage of Total per Category for <u>Self-Description</u> .	48
Table 24:	Distribution of COTRANS-Sponsored Examinees by Self-Description and by Country of Foreign Medical School, 1975 Test Year	50
Table 25:	MCAT Scores and Undergraduate College Grades of COTRANS-Sponsored Examinees by <u>Self-Description</u> and by Pass/Fail Status, Part I of the 1975 NBME Examinations	51
Table 26:	Comparison of 1975 COTRANS-Sponsored Examinees with Applicants to U.S. Medical Schools, 1973-74 First-Year Class by Percentage of Total per Category for <u>Parental Income Level</u>	53
Table 27:	MCAT Scores and Undergraduate College Grades of COTRANS-Sponsored Examinees by <u>Parental Income</u> and by Pass/Fail Status, Part I of the 1975 NBME Examinations	55
Table 28:	Comparison of 1975 COTRANS-Sponsored Examinees with Applicants to U.S. Medical Schools, 1973-74 First-Year Class by Percentage of Total per Category for <u>Father's Occupation</u>	57
Table 29:	MCAT Scores and Undergraduate College Grades of COTRANS-Sponsored Examinees by <u>Father's Occupation</u> and by Pass/Fail Status, Part I of the 1975 NBME Examinations	58
Table 30:	Comparison of 1975 COTRANS-Sponsored Examinees with Applicants to U.S. Medical Schools, 1973-74 First-Year Class by Percentage of Total per Category for <u>Career Activity Plans</u>	61
Table 31:	MCAT Scores and Undergraduate College Grades of COTRANS-Sponsored Examinees by <u>Career Activity Plans</u> and by Pass/Fail Status, Part I of the 1975 NBME Examinations	62
Table 32:	Comparison of 1975 COTRANS-Sponsored Examinees with Applicants to U.S. Medical Schools, 1973-74 First-Year Class by Percentage of Total per Category for <u>Specialization Plans</u>	63

Table 33:	MCAT Scores and Undergraduate College Grades of COTRANS-Sponsored Examinees by <u>Specialization Plans</u> and by Pass/Fail Status, Part I of the 1975 NBME Examinations . . . . .	65
Table 34:	Comparison of 1975 COTRANS-Sponsored Examinees with Applicants to U.S. Medical Schools, 1973-74 First-Year Class by Percentage of Total per Category for <u>Expected Character of Medical</u> <u>Practice</u> . . . . .	67
Table 35:	MCAT Scores and Undergraduate College Grades of COTRANS-Sponsored Examinees by <u>Expected Character of</u> <u>Medical Practice</u> and by Pass/Fail Status, Part I of the 1975 NBME Examinations . . . . .	69

## Executive Summary

The characteristics of selected U.S. citizens studying medicine abroad have been considered in this study from the perspective of their academic ability levels and their demographic origins. From these viewpoints, a definite profile emerges of the average student who was sponsored for Part I of the National Board of Medical Examiners (NBME) tests by the Coordinated Transfer Application System (COTRANS) during 1975.

### Purpose

This analysis was undertaken to produce a detailed description of U.S. citizens studying abroad who participated in COTRANS in 1975 with emphasis on the following specific objectives:

- a. To review COTRANS sponsorships for Part I, NBME and advanced standing admissions to U.S. medical schools in 1975.
- b. To analyze Part I, NBME test results by overall score distribution, by first-time and repeat status, by sex, and by country of location of foreign medical school.
- c. To describe the academic background of 1975 COTRANS participants in terms of MCAT scores and undergraduate grade point averages, as derived from previous applications to U.S. medical schools, and to compare the 1975 COTRANS group with the 1973-74 U.S. medical school applicant pool.
- d. To describe the biographic and socioeconomic background characteristics of 1975 COTRANS participants (including their undergraduate college origins) and to compare these characteristics with those of the 1973-74 applicant pool.
- e. To identify career preferences in regard to general career activity, specialization plans, and expected character of medical practice of the 1975 COTRANS group with comparable career preferences of the 1973-74 applicant group.

### Methodology

Basic data for this profile were derived from COTRANS-Eligibility summaries, from Part I, NBME test score summaries, from the AAMC Medical Student Information System (MSIS), from Medical College Admission Test (MCAT) questionnaires, and from AAMC Fall Enrollment surveys.

## Major Findings

A synthesis of the data from these sources describes the majority of 1975 COTRANS participants as follows:

### Applicants and Admissions

Upon determination of eligibility for participation in Part I, NBME, 664 (or 88 percent) of the 799 COTRANS-sponsored applicants wrote the two-day examination and 377 (or 57 percent) passed. In 1975, 243\* COTRANS-sponsored examinees were successful in being admitted with advanced standing to one of the 41 (36 percent of the total of 114) medical schools in the nation accepting transfers from foreign medical schools that year. Two-thirds (67 percent) of the passing candidates had submitted applications for first-year places in U.S. medical schools in 1973-74, but none had been accepted.

### Part I, NBME Performance

Of the 664 Part I, NBME participants, 40 percent were test repeaters and 9 percent were women. Of the 377 passing candidates, 48 percent were test repeaters. The average total score was 392, which was more than one standard deviation below the average of 503 of the candidate group of U.S. medical schools. The average score for COTRANS candidates who passed was 489, and the highest average subject area scores were attained in microbiology (506) and biochemistry (507). With the exception of behavioral sciences, average test scores for women were below those of men.

Contrary to some impressions, not all of the COTRANS-sponsored examinees from foreign medical schools had test scores below the mean of the U.S. candidate group. There were 141 (37 percent of passing COTRANS-candidates) who scored above 500. Among these higher than average achievers were 30 individuals who scored above 600 and 4 above 700.

By country of location of foreign medical school, candidates from Switzerland, Mexico and Belgium achieved the highest pass rates. (Of the passing examinees from Mexico, 74 percent were test repeaters.) Although test repeaters generally did not improve their scores, repeater scores were higher than first-time scores for Belgium, Italy and the Philippines.

Correlations between MCAT scores and Part I, NBME scores showed that the MCAT Science subtest was a good predictor of Part I, NBME performance. MCAT Quantitative scores were not as useful for this purpose. These findings paralleled the relationships between similar tests for

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\* Not all of these 243 advanced standing admissions belonged to the group that passed Part I, NBME in 1975.

students at U.S. medical schools. The correlations between scores on the MCAT Verbal Ability as well as General Information subtests and Part I, NBME, however, were higher for COTRANS-sponsored examinees than for U.S. medical school students.

### Academic Background

Academic ability levels, based on MCAT Science scores and grade point averages, yielded respective means of 531 and 2.79 for the total COTRANS group and of 553 and 2.81 for passing COTRANS-sponsored examinees.

Fifty-one percent of the 1975 COTRANS participants attended privately supported undergraduate colleges, and 60 percent of the students from private schools passed Part I, NBME. Of the students from public schools, 54 percent passed.

The 76 COTRANS participants whose GPAs and MCATs placed them in the highest of the four grade/score combinations of the GPA-MCAT Profile (Table 20) mostly reflected uneven score/grade combinations. One third of their MCAT scores were above 600, while only 10 percent of their GPAs were above 3.40.

### Demographic Information

Two-thirds of the COTRANS participants came from three states: New York (41 percent), New Jersey (14 percent) and California (9 percent). Ages ranged from 21 to 53 with a mean age of 26 for men and 28 for women. By racial/ethnic origin, the majority (87 percent) were Caucasians who attended medical schools mainly in Mexico (46 percent), Belgium (17 percent) and Italy (13 percent). The largest single minority group besides "Other" comprised 13 Hispanic Americans, of whom 7 studied medicine in the Dominican Republic. The entire group of 1975 COTRANS-sponsored examinees was distributed over 67 medical schools in 21 countries. Groups ranging from 14 to 286 accounted for 96 percent of the candidates in eight host countries.

The 1975 COTRANS group reported higher median parental income levels (\$17,900) than did the 1973-74 U.S. medical school applicant pool (\$14,800). Forty-four percent of the COTRANS candidates came from families with incomes of \$20,000 or more. Nearly three-fourths of the COTRANS group had fathers with health, other professional or owner/manager occupations. Most notable were 20 percent physician fathers versus 12 percent for the 1973-74 applicant pool.

### Career Plans

For COTRANS participants, "Specialty Practice" (34 percent) and "General Practice" (32 percent) were the preferred Career Activity choices

of the major general areas listed on the MCAT questionnaire. Of the individual specialty categories, "Family Practice" (13 percent) and "Surgery or Surgical Specialty" (16 percent) were preferred. Of the Character of Medical Practice options, "Individual Practice" (28 percent) and "Hospital-Based Group Practice" (20 percent) were the most popular categories.

### Conclusions

From the above findings, the following conclusions can be drawn in regard to the specific objectives listed under the "Purpose" section of this Executive Summary:

- a. U.S. citizens studying medicine abroad who attempted to transfer to U.S. medical schools in 1975 via COTRANS were mostly former unaccepted applicants to U.S. medical schools. COTRANS-sponsored examinees accounted for 243 advanced standing admissions of such transfer students in 1975, but not all of them belonged to the 1975 COTRANS group.
- b. The average Part I, NBME total score for COTRANS-sponsored examinees was about one standard deviation below the mean total score of the U.S. candidate group, but passing COTRANS-sponsored examinees were only slightly below the candidate mean. Women, who accounted for 9 percent of those tested, tended to have lower scores in all areas except behavioral sciences. Of the significant correlations between the MCAT Science subtest and Part I, NBME, strong correlations were observed only for students from Belgium and Switzerland.
- c. Academic ability levels of the COTRANS group were below those of U.S. medical school applicants generally, but higher than those of the non-accepted group of the 1973-74 applicant pool. COTRANS participants whose MCAT scores and grade point averages were above 505 and 3.00 respectively, tended to have uneven score/grade combinations.
- d. COTRANS-sponsored examinees tended to come from private undergraduate schools and from New York, New Jersey or California. They were more likely to have physician or professional fathers and to come from higher income family backgrounds than the 1973-74 applicants to U.S. medical schools.
- e. More COTRANS-participants than 1973-74 applicants to U.S. medical schools expressed tentative career preferences for "Specialty Practice," "Surgery or Surgical Specialty," and "Individual Practice" at the time of taking the Medical College Admission Test.



In summary, 377 or more than half of the examinees sponsored by COTRANS in 1975 succeeded in passing Part I, NBME, and 243 were admitted to a U.S. medical school even though some of their background characteristics had once placed them in the non-accepted applicant category.

## I. INTRODUCTION

This study was undertaken for the purpose of discovering the academic, biographic and socioeconomic characteristics of U.S. citizens who study medicine abroad and who attempt transfer to U.S. medical schools. In fulfillment of the first phase of a two-phase contract,\* this analysis describes ability levels and backgrounds of the group that participated in the Coordinated Transfer Application System (COTRANS) in 1975. A trend study analyzing similar data from 1970 through 1976 is scheduled for the second phase of the project.

The Coordinated Transfer Application System (COTRANS), a cooperative effort of the Association of American Medical Colleges (AAMC) and the National Board of Medical Examiners (NBME), was established in 1970. The system was designed to assist U.S. medical schools by sponsoring U.S. citizens who study medicine abroad for permission to take Part I, NBME. Prior to the advent of COTRANS, sponsorship for Part I, NBME had to be arranged by the medical schools. This test is one of the important prerequisites for accomplishing transfers from foreign to U.S. medical schools with advanced standing. COTRANS, nonetheless, is limited to establishing eligibility, granting sponsorship and disseminating information on student profiles and test scores. It does not include any admissions decisions or placement services.

COTRANS applicants are provided by AAMC with an annually updated list of medical schools willing to consider U.S. citizen students from foreign medical schools, but applications for advanced standing admission are submitted by each applicant on a personal basis and not through a centralized service. Counts of advanced standing admissions at U.S. medical schools are obtained from the annual AAMC Fall Enrollment Survey.

In order to establish eligibility for participation in Part I of the NBME examinations, COTRANS staff reviewed and evaluated foreign transcripts, proof of U.S. citizenship, evidence of current enrollment and other credentials of all applicants. From these records, approximately 1,000 individual basic data profiles per year were derived and disseminated to requesting U.S. medical schools on periodic alphabetic

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\* Contract No. 231-76-0011 between the Association of American Medical Colleges and the Bureau of Health Manpower of the U.S. Department of Health, Education and Welfare.

Eligibility Summaries. In addition, U.S. medical schools were furnished with summary reports of Part I, NBME test scores for all COTRANS-sponsored examinees.

The descriptive study of Phase I incorporates several comparative analyses. Many of the 1975 COTRANS participants were also former applicants to U.S. medical schools and therefore had records in both the COTRANS and the AAMC Applicant Systems. Data of this group were compared with data of all applicants for 1973-74 first-year places in U.S. medical schools. For those 1975 COTRANS participants who had complete data for both the Medical College Admission Test (MCAT) and Part I of the National Board of Medical Examiners (NBME) tests, their "before and after" test performances were compared.

In addition, a special analysis was produced of 1975 COTRANS participants whose earlier U.S. medical school applications indicated "High Ability," as measured by their scores on the MCAT Science subtest and by their undergraduate grade point averages (GPAs).

## II. METHODOLOGY

### A. Data Sources

#### 1. Eligibility Summaries

Prior to each Part I, NBME test administration in June and September of each year, alphabetical summaries of COTRANS applicants who are eligible for participation in Part I, NBME are printed periodically to provide interested U.S. medical schools with the following information items:

- a. Social security number
- b. Name
- c. Address
- d. Date of birth
- e. Legal state of residence
- f. Undergraduate school attended
- g. Undergraduate GPA (by science, non-science and total)
- h. Latest MCAT Scores
- i. Foreign medical school attended
- j. Previous COTRANS participation
- k. Previous Part I, NBME participation

These data profiles are extracted from COTRANS application forms and consist of applicant self-reports. In 1975 a tape file was created, and for the first time the COTRANS Eligibility Summaries were produced by computer.

#### 2. NBME, Part I Summaries

About six weeks after each Part I, NBME test administration, the National Board of Medical Examiners furnishes AAMC with alphabetical summaries of test scores and individual reports of scores for each examinee who was sponsored by COTRANS. (Copies of the test score summaries are sent to interested medical schools, while the individual score reports are distributed to each test participant.) These summaries contain total test scores and individual scores for the following subjects:

- a. Anatomy
- b. Behavioral Science
- c. Biochemistry
- d. Microbiology
- e. Pathology
- f. Pharmacology
- g. Physiology

(3)

Pass/fail information is indicated for total test scores. COTRANS-sponsored examinees are identified by name, by a unique NBME test number, and by date of birth.

### 3. COTRANS Data File

#### a. Automated COTRANS File

During 1976 an automated tape file was created for the 1975 COTRANS participants. This is the initial segment of the national computerized data base that is being established for all COTRANS data from 1970 through 1976. Data elements for this automated COTRANS file are derived from:

- (1) COTRANS application entries
- (2) NBME, Part I test score summaries.

#### b. Medical Student Information System (MSIS)

Additional data elements are available from the Medical Student Information System (MSIS) for those COTRANS participants who had previously applied to U.S. medical schools and whose social security numbers can be matched. MSIS data supplementing the information on the COTRANS application form include the following variables:

- (1) Racial/ethnic self description
- (2) Type of undergraduate college attended (public or private)
- (3) Parental income level
- (4) Parental educational level
- (5) Tentative career activity plans
- (6) Tentative specialty choice
- (7) Preferred character of medical practice
- (8) Preferred location of medical practice.

These MSIS data elements derive from applications to U.S. medical schools and from questionnaires completed at the time the MCAT was taken. Since responses to questions in these data-gathering forms are optional, the size of the "No Response" group is not the same for all variables.

Because of the relatively small number of students in this study, it was decided to combine the MSIS data for those who applied for either the 1972-73 or the 1973-74 first-year classes of U.S. medical schools. For applicants

who filed applications for both years, the older record was disregarded and their 1973-74 data were used.

c. Comparison Data

Comparisons of the demographic and career plan data of 1975 COTRANS applicants with similar data for the entire U.S. medical school 1973-74 applicant pool are based on previously published information in the Journal of Medical Education and in Division of Student Studies (DSS) Technical Report 76-1. Condensed percentage tables presenting salient comparisons of these two groups are included in the main portion of this report.

B. Major Study Variables

The tables designed for the variables to be analyzed in this study are organized into five topical divisions:

1. Applicants and Admissions
2. Part I, NBME Performance
3. Academic Background
4. Demographic Information
5. Career Plans

Actual head counts of the entire group of 1975 COTRANS participants were used for the data summaries presented in most of the tables. Separate counts were provided for first-time and repeat applicants for COTRANS sponsorship and for first-time and repeat examinees. Some of the tables are divided by country of location of foreign medical school, while others depict background characteristics by the Part I, NBME pass/fail criteria.

C. COTRANS Participants with U.S. Applicant Records

Whenever 1975 COTRANS participants were matched with their previous application records to U.S. medical schools, the head counts and ability level data represent a blend of information from both the 1972-73 and the 1973-74 applicant pools. More than half of the 1975 COTRANS-sponsored examinees had also applied for the 1972-73 and/or the 1973-74 first-year classes.

#### D. Production of Data

Cross tabulations, percentages, mean test scores, standard deviations, and correlation coefficients were produced by utilizing standard statistical computer programs. Special programs were written to determine the confidence intervals for the correlation coefficients and to calculate chi squares. Breakdowns by the Part I, NBME pass/fail criteria for the demographic and career choice characteristics were accomplished by modifying existing applicant study programs. Rank orders or listings in descending order were produced manually for tables showing countries of location of foreign medical school and states of legal residence.

#### E. Statistical Analyses

In addition to the descriptive statistics shown in the tables, several statistical tests were employed to determine whether or not observed differences in the data occurred by chance.

The chi square ( $\chi^2$ ) statistic was utilized for estimates of chance occurrences of relationships in the distributions in selected tables. The results of chi square tests for entire distributions are shown on of the tables concerned. Chi square tests for proportional representation of special categories are discussed in the narrative.

Correlation coefficients and their corresponding confidence intervals were calculated to test which of the four MCAT subtests are predictors of Part I, NBME performance for COTRANS-sponsored examinees. In addition to the r value for the total group, individual r values and their confidence intervals were computed for selected groups of 10 or more by country of location of foreign medical school.

#### F. Limitations of Study

The question referring to the number of years of medical study completed abroad was removed from the 1975 COTRANS application form and therefore could not be included in this analysis. This information however, is expected to be available for the years prior to 1975 and for 1976 for the COTRANS trend study scheduled for Phase II of the contract.

As mentioned in Section II A 3 above, the COTRANS application form does not contain information related to eight pertinent background characteristics that are available only from the AAMC Applicant System that is part of MSIS. Therefore, complete data could be retrieved only if the COTRANS participant had (1) applied to U.S. medical schools two to three years earlier, (2) responded to all questions on either the American Medical College Application Service

(AMCAS) application form or the MCAT Questionnaire, and (3) signed a release statement. (Nearly all applicants sign this release.)

Some COTRANS participants have never applied to U.S. medical schools, and some have never taken the MCAT. Others may have applied to U.S. medical schools prior to or after the two years for which MSIS data were scanned electronically. For economic reasons, the search for previous U.S. application activity was confined to the years that the majority of the 1975 COTRANS participants would have been most likely to have applied originally to a U.S. medical school.

Since the curriculum structure at foreign medical schools varies from country to country, the COTRANS group comprises several class levels and is not limited to students at a common stage of medical education, such as the threshold of the third year of study in a U.S. medical school.

Although the data availability for academic and demographic background characteristics is limited to 65 percent of the 1975 COTRANS group, the results are still expected to provide useful information. For those variables, however, that show large totals for the "No Response" category, the results will be less reliable and should be regarded with caution.



### III. RESULTS AND DISCUSSION

Since this study was undertaken to learn as much as possible about the backgrounds and characteristics of U.S. citizens attending foreign medical schools, the results were organized to:

1. Review aggregate Part I, NBME test performance and success for admission to advanced standing in U.S. medical schools.
2. Detect similarities or differences, as related to test performance and selected characteristics, among groups studying medicine in different countries.
3. Assess the foreign medical school experience through correlating appropriate test scores.
4. Compare the academic and demographic characteristics of 1975 COTRANS participants with those of all applicants to U.S. medical schools for 1973-74.
5. Scrutinize "High Ability" COTRANS participants who had both high MCAT scores and high grade point averages (MCAT 501-800, GPA 3.00-4.00) according to their U.S. medical school applicant records.

Where appropriate, data were examined to illuminate some of the problem areas associated with the frequently controversial issue of U.S. citizens in foreign medical schools.

#### A. Applicants and Admissions

##### 1. Eligible Applicants and Examinees

Summarized in Table 1 are yearly totals of COTRANS applicants who were sponsored for participation in Part I, NBME, the number who took the examinations, and the number and percent who passed. In interpreting this table, it should be noted that some of the sponsored COTRANS participants do not sit for the exam as scheduled due to conflicts with examination dates at their schools or for personal reasons. Part I, NBME may be taken in June at U.S. or foreign test centers or in September at U.S. test centers only. Participation in this examination is restricted to three attempts in different calendar years.

TABLE 1  
Summary of Applicant and NBME Part I Testing Activity  
Of COTRANS-Sponsored Examinees, 1970 Through 1975

Year (1)	Number of Applicants Sponsored (2)	Number Tested (3)	Number Passed (4)	Percent Passed (5)
Total	4,643	3,814	1,421	37.3
1970	285	270	77	28.5
1971	580	437	102	23.3
1972	807	676	215	31.8
1973	1,046	957	292	30.5
1974	1,126	810	358	44.2
1975	799	664	377	56.8

## 2. COTRANS-Sponsored Examinees

In 1975, of the 799 sponsored candidates, 664 (88.1 percent) took Part I, NBME and 377 (56.8 percent) passed.\* There were fewer sponsored (down by 29 percent) and tested (down by 18 percent) candidates than in 1974, mainly due to a requirement by the Universidad Autonoma de Guadalajara (UAG) that COTRANS applicants must have completed at least two years of medical course work. This limitation appears to have been imposed to prevent one-year students from taking Part I, NBME and thus to improve the pass rate of individuals attending the institution.

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\* Of the 664 examinees, 543 were tested in June and 121 in September 1975. Of the 377 passing examinees, 316 were in the June group and 61 in the September group.

The 56.8 percent pass rate of the 1975 COTRANS-sponsored examinees is the highest on record since the establishment of this program. Contributing factors may have been (1) the already mentioned restriction imposed by UAG where 43 percent of the 1975 COTRANS participants were enrolled, and (2) the high proportion (48 percent) of test repeaters among those who passed Part I, NBME that year. (Of the 263 test repeaters, only 32 percent failed.)

### 3. Advanced Standing Admissions to U.S. Medical Schools

The summary of advanced standing admissions of COTRANS participants at U.S. medical schools (Table 2) shows that in any given year, less than 40 percent of all the medical schools in the United States admitted COTRANS-sponsored U.S. students from foreign medical schools. (Since the inception of COTRANS, there have been over 100 U.S. medical schools in existence but a maximum of 44 admitted such transfers in one year.)

TABLE 2  
Summary of Admissions of COTRANS-Sponsored Examinees  
1970 Through 1975

Year (1)	Number of Medical Schools (2)	Medical Schools Admitting Transfers		Admission Year of Accepted COTRANS Applicants			Total per Year *
		Number (3)	Percent (4)	2nd Year (5)	3rd Year (6)	4th Year (7)	
1970	103	38	36.9	12	70	0	82
1971	108	35	32.4	25	90	0	115
1972	112	32	28.6	36	167	11	214
1973	114	36	31.6	34	115	4	153
1974	114	44	38.6	85	169	8	262
1975	114	41	36.0	42	201	0	243

\*Source: AAMC Fall Enrollment Questionnaires

Advanced standing totals in relation to passing Part I, NBME totals for a given year are limited to estimates because no exact data are available for:

- (a) 1975 advanced standing admissions who passed Part I, NBME in 1974 or earlier;
- (b) September 1975 examinees who passed but who were not eligible for admission until 1976;
- (c) Second-year admissions who may not have had a passing total score but who performed well in the three first-year basic science subjects of anatomy, physiology, and biochemistry.

Even recognizing the above limitations, it is obvious that not everyone who passed Part I, NBME was admitted to a U.S. medical school. In 1974, for example, 358 individuals passed, but only 262 transfer students (not all of them part of the 358) were admitted. Those examinees who passed but were unsuccessful in finding a place either had to return to their foreign medical schools or alter their career goals. In 1975, the focal year of this study, 243 transfers from foreign medical schools were admitted to advanced standing although 377 COTRANS-sponsored examinees had passed Part I, NBME that year.

In interpreting the finding that not all passing examinees were admitted to U.S. schools, it should be remembered that Part I, NBME test scores are not necessarily the major factor in admissions decisions. MCAT scores, undergraduate grade point averages, interviews, and letters of recommendation are also given serious consideration by most U.S. medical schools.

#### 4. COTRANS Candidates Who Were U.S. Medical School Applicants

To provide data on background characteristics that are not supplied on the COTRANS application form, the 1975 COTRANS participants were matched with the applicant system of MSIS. As indicated in Table 3, applicant activity for first-year places in U.S. medical schools in 1972-73 and/or 1973-74 was discovered for 492 individuals, of whom 139 had applied for both years. Of these 492 who were sponsored by COTRANS for Part I, NBME, 430 took the examination and 251 or 58.4 percent passed. The 1975 COTRANS group with former U.S. medical school applicant records comprised 65 percent of all 1975 COTRANS-sponsored examinees and 67 percent of those who passed NBME, Part I.

TABLE 3

COTRANS-Sponsored Candidates for Part I of the 1975 NBME Examinations

By Sex and by Previous Applicant Activity for First-Year Classes

Of U.S. Medical Schools: 1972-73 and 1973-74

Category (1)	Sponsored		T e s t e d			P a s s e d		
	Number (2)	Percent (3)	Number (4)	Percent of All Sponsored (5)	Percent of Tested (6)	Number (7)	Percent of All Tested (8)	Percent of Passed (9)
All Candidates	799	100.0	664	83.1	100.0	377	56.8	100.0
Men	729	91.2	606	83.1	91.3	353	58.3	93.6
Women	70	8.8	58	82.9	8.7	24	41.4	6.4
Candidates With Previous U.S. Medical School Applicant Records	492*	100.0	430	87.4	100.0	251	58.4	100.0
Men	442	89.8	338	87.8	90.2	235	60.6	93.6
Women	50	10.2	42	84.0	9.8	16	43.2	6.4

\* The total of 492 represents individuals who applied for first-year places in U.S. medical schools at least once. Of this total, 139 applied for first-year places in both 1972-73 and 1973-74.

5. Applicants to U.S. Medical Schools

Although Table 4 provides considerable historical information on the volume of applicants, applications, and enrollments in U.S. medical schools, it only indirectly indicates the large numbers who were not accepted. For 1973-74, for example, the 2.83 applicants per acceptance represents 26,171 individuals who were not accepted. About 41.5 percent (10,871) of these non-accepted applicants repeated the application process for 1974-75 and 2,926 (or 26.9 percent) of these repeat applicants were successful. These 2,926 individuals, however, only represent 11.2 percent of the 26,171 original rejectees.

Thousands of other non-acceptees had to decide whether to change their career goals or to persist by enrolling in foreign medical schools. There are no data available on the annual increments making up the total estimate of 6,000 U.S. citizens believed to be studying medicine abroad.\* It is obvious, however, that COTRANS participants represent only a fraction of the number of U.S. students who attempt foreign study. Some of the non-participants drop out of foreign schools and some complete their entire medical study abroad. Although some individuals obtain a foreign M.D. by preference, more are compelled to complete four to six years abroad because they either failed Part I, NBME or they passed but were not accepted to advanced standing admission by any U.S. medical schools.

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\* V. Wilson (Ed.), Medical School Admission Requirements, 1977-78, United States and Canada (Washington, D.C.: Association of American Medical Colleges, 1976), p. 67.

TABLE 4

## Summary of Application Activity of Applicants to U.S. Medical Schools

1970-71 Through 1975-76

First-Year Class	Number of Medical Schools	Number of Applicants	Number of Applications	Applications per Individual	Accepted Applicants	Number of Applicants per Acceptance	First-Year Enrollment*	Percent of Total Applicants Accepted
1970-71	103	24,987	148,797	5.95	11,500	2.17	11,348	46.0
1971-72	108	29,172	210,943	7.23	12,335	2.36	12,361	42.3
1972-73	112	36,135	267,306	7.40	13,757	2.63	13,677	38.1
1973-74	114	40,506	328,275	8.10	14,335	2.83	14,159†	35.4
1974-75	114	42,624	362,376	8.50	14,066	2.83	14,763‡	35.3
1975-76	114	42,303	366,040	8.65	15,365	2.75	15,295	36.4

\*Includes previously enrolled students.

†Variations from previously published total reflect late reports.

‡Total does not include an additional first-year class of 157 students admitted to New York Medical College in the Spring of 1975.

Source: AAMC annual studies of U.S. medical school applicants; data for first-year enrollment from AAMC annual Fall Enrollment Questionnaires.

B. Part I, NBME Test Performance

1. Participants

a. First-Time and Repeat Applicants

Counts of 1975 COTRANS participants are shown separately by first-time and repeat candidacy and by sex (Table 5). Of the 799 who were approved as eligible, 488 (61 percent) were sponsored for Part I, NBME for the first time, while 311 (39 percent) had been sponsored by COTRANS previously. The total of 799 included 70 or 8.8 percent women of whom 30 percent were repeat candidates. Of the 720 men candidates, 40 percent were repeaters.

TABLE 5

Comparative Pass Rates, by Sex, for First-Time and Repeat  
COTRANS-Sponsored Examinees, Part I of 1975 NBME Examinations

Category (1)	Sponsored		T e s t e d			P a s s e d		
	Number (2)	Percent (3)	Number (4)	Percent of All Sponsored (5)	Percent of All Tested (6)	Number (7)	Percent of All Tested (8)	Percent of All Passed (9)
All Examinees	799	100.0	664	83.1	100.0	377	56.8	100.0
Men	729	91.2	606	83.1	91.3	353	58.3	93.6
Women	70	8.8	58	82.9	8.7	24	41.4	6.4
First-Time Examinees	488	100.0	401	82.2	100.0	197	49.1	100.0
Men	439	100.0	360	82.0	89.8	183	50.8	92.9
Women	49	100.0	41	83.7	10.2	14	34.1	7.1
Repeat Examinees	311	100.0	263	84.6	100.0	180	68.4	100.0
Men	290	100.0	246	84.8	93.5	170	69.1	94.4
Women	21	100.0	17	81.0	6.5	10	58.8	5.6



b. First-Time And Repeat Examinees

Not all of the 799 candidates sponsored for Part I, NBME took the examination. The 664 who were tested represented 83.1 percent of all those who were eligible. Fifty-eight or 8.7 percent of these examinees were women, and 263 or 40 percent of the total tested were repeat examinees. The passing group of 377 comprised 93.6 percent men and 6.4 percent women. Of all passing examinees, 180 or 47.7 percent were test repeaters including 48 percent of the men and 42 percent of the women.

c. Pass Rates by Country

Although the 664 COTRANS-sponsored examinees studied medicine at 67 medical schools in 21 countries, 96 percent of the examinees were concentrated in eight countries. Countries of location of foreign medical schools were ranked in descending order by (1) number of students, and (2) their pass rate on Part I, NBME (Table 6). In the former ranking, Mexico, Belgium, and Italy occupied the first three positions, while in the second sequence (by pass rate), Switzerland, Mexico, and Belgium attained the three highest passing percentages. The placement of Mexico in the first position because of the largest number of U.S. citizens attending medical schools there continued past trends. A surprise, however, was the ranking of Mexico in second place by pass rate, since students from Mexican schools had ranked fourth in past years.\*

An explanation of the higher 1975 pass rate for Mexico may involve several possible causes: (1) nearly three-fourths (74 percent) of the passing examinees from Mexican medical schools were test repeaters, (2) large numbers of first-year medical students were prevented from taking Part I, NBME due to the two-year minimum of medical studies imposed by Universidad Autónoma de Guadalajara (UAG) in 1975, and (3) 21 percent of the passing examinees from Mexico were from medical schools other than Guadalajara. (This compares to 19 percent of the test participants in this category.)

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\* W. F. Dubé, "COTRANS: After Five Years (Datagram)," Journal of Medical Education, 50: 208-211, 1975.

TABLE 6  
Test Performance of COTRANS-Sponsored Examinees  
Part I, NBME 1975, by Country of Foreign Medical School

Country of Medical School Ranked by Number of Examinees			Pass Rates Per Country		
Country (1)	Number (2)	Percent of Total (3)	Number (4)	Percent Passed (5)	Country Ranked by Pass Rate (6)
Total	664	100.0	377*	56.8	---
Mexico	286	43.1	176	61.5	2
Belgium	120	18.1	73	60.8	3
Italy	88	13.3	51	58.0	4
Philippines	51	7.7	26	51.0	6
France	39	5.9	20	51.3	5
Spain	23	3.5	6	26.1	7
Switzerland	18	2.7	15	83.3	1
Dominican Republic	14	2.1	1	7.1	8
Other †	25	3.8	9	36.0	---

\*48 percent of the passing examinees were test repeaters.

†Includes Argentina, 2; Austria, 1; Colombia, 1; Cuba, 1; German Federal Republic, 2; Greece, 1; Iran, 8; Ireland, 3; Jamaica, 1; Poland, 2; Portugal, 1; United Arab Republic, 1; United Kingdom, 1.

The chi square measuring differences between proportions for the entire table = 37.13 (8df),  $p < .01$ .

Other countries achieving higher pass rates in 1975 than previously were France and the Philippines with 51 percent each. Lower pass rates than in 1974 were recorded for Belgium, Italy, Spain, and Switzerland. A new listing is the Dominican Republic, which was represented by more than 10 COTRANS-sponsored U.S. students for the first time in 1975.

The chi square statistic was used to test differences in the two distributions (shown in Table 6). The chi square value of 37.13 (with 8 degrees of freedom and  $p < .01$ ) indicates that the pass rates are not equivalent.

## 2. Part I, NBME Results

### a. Test Scores by Pass/Fail

Mean scores of each Part I subject area are presented separately for the passing, failing, and total groups (Table 7). The mean total score of 489 for passing COTRANS-sponsored examinees was 11 points below the mean of 500 of the Candidate Reference Group for 1975.\* The mean total score of the failing group was 266 or 114 points below the minimum passing score of 380. For the total COTRANS group, the mean score was 392 with a standard deviation of 138. (The standard deviation for the U.S. candidate group was 100.) Individual total scores ranged from a low of 005 to a high of 750. As indicated in the footnote of Table 7, the total pass rate for the 66 COTRANS-sponsored examinees was 56.8 percent. This compares with a pass rate of 89.1 percent for the 7,614 candidates at U.S. medical schools.

For the seven individual Part I, NBME subject areas, the National Board of Medical Examiners has not established any passing minimums, but scores below 400 (one standard deviation below the mean of the Candidate Reference Group) may be considered indicative of areas of weakness within the total test. Conversely, scores of 600 or higher (one standard deviation above the candidate mean) reflect areas of extraordinary performance.†

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\* See glossary for definition of Candidate Reference Group.

† Per NBME Communication of December 30, 1975.

TABLE 7  
Mean Scores, Part I of 1975 NBME Examinations of COTRANS-Sponsored  
Examinees and of Total 1975 NBME Candidate Group from U.S. Schools

Subject (1)	Passing Group N-377† Total (2)	Failing Group N-287† Total (3)	All Examinees* N-664 Total (4)	Candidate Group† Mean of All U.S. Schools 1975 N-7,614 (5)
Total Test (S.D.)	489 (78)	266 (87)	392 (138)	503 (100)
Anatomy (S.D.)	499	299	436 (121)	500 (101)
Physiology (S.D.)	494	279	419 (129)	501 (101)
Biochemistry (S.D.)	506	279	442 (128)	504 (101)
Pathology (S.D.)	488	247	368 (147)	503 (100)
Microbiology (S.D.)	507	266	414 (143)	504 (100)
Pharmacology (S.D.)	501	257	395 (146)	502 (100)
Behavioral Sciences (S.D.)	468	279	386 (118)	505 (99)

\*Percent passing based on total test = 56.8.

†Data for Total Candidate Group supplied by NBME. (Candidate Pass/Fail data not available.) Percent passing based on total test = 89.1.  
See glossary for definition of Candidate group.

Mean standard score for total test and each subject = 500; standard deviation for total test and each subject = 100 (from Norm Tables for Part I, NBME, 1975).

‡Minimum standard score required to pass total test = 380. N's vary by subject area. For the purposes of this report, 380 was considered as passing. For Anatomy, for example, the passing N was 456 and the failing N was 208.

b. Test Scores by Subject Area

Passing COTRANS-sponsored examinees attained mean scores above 500 (the mean of the Candidate Reference Group) in biochemistry, microbiology, and pharmacology. Mean scores for anatomy (499), physiology (494), and pathology (488) were close to the candidate mean of 500. The lowest mean score of 468 occurred in the behavioral sciences.

Combined mean scores per Part I subject for the passing and the failing COTRANS-sponsored examinees were all below 500. Of the seven subjects, the mean scores for anatomy, physiology, biochemistry, and microbiology were above 400, while pathology, pharmacology, and the behavioral sciences were below 400. Mean scores by Part I subject for the candidate group from U.S. medical schools in 1975 were all 500 or above.

c. Test Scores by Sex

Separate mean scores per Part I subject for men and women tend to be in favor of men (Table 8). In comparing the passing examinees, men achieved higher test scores in all subjects except behavioral sciences. The largest differences between mean scores occurred in physiology and pharmacology, where men scored 45 and 30 points higher respectively. The smallest differences were noted for microbiology (14) and pathology (13).

A comparison of the total group shows that differences between mean scores of men and women range from a low of 4 for behavioral sciences to a high of 69 for physiology. The remaining differences approximate one-half of a standard deviation. Except for the anatomy mean of 301 for failing men, mean scores for failing men and women were below 300 in all subject areas. This is two standard deviations below the mean of the Candidate Reference Group.

d. Distribution of Passing Scores

The distribution of total scores of the 377 COTRANS-sponsored examinees who passed Part I, NBME is generally below that of the Candidate Reference Group (Table 9). Nearly two-thirds (63 percent) had scores below the candidate reference mean of 500, while slightly more than one-third (37 percent) were above that mean. Fifty-three percent were between the minimum passing score of 380 and 480, 35 percent were between 481 and

TABLE 8

Mean Scores, by Sex, Part I of the 1975 NBME Examinations of  
COTRANS-Sponsored Examinees

Subject	Passing Group N-377†			Failing Group N-287†			All Examinees * N-664		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Total Test	490	472	489	268	244	266	397	338	392
Anatomy	501	473	499	301	288	299	441	387	436
Physiology	498	453	494	284	237	279	425	356	419
Biochemistry	507	488	506	281	262	279	446	399	442
Pathology	489	476	488	249	226	247	372	321	368
Microbiology	508	494	507	268	252	266	419	369	414
Pharmacology	503	473	501	259	242	257	401	338	395
Behavioral Sciences	467	480	468	279	283	279	386	382	386

\*Percent passing based on total test = 56.8.

Highest Total Score = 750; Lowest Total Score = 005.

Mean standard score for total test and each subject = 500; standard deviation for total test and each subject = 100 (from Norm Tables for Part I, NBME, 1975).

†Minimum standard score required to pass total test = 380. N's vary by subject area. For the purposes of this report, 380 was considered as passing. For Anatomy, for example, the passing N was 456 and the failing N was 208.

580, 10 percent were between 581 and 680, and 2 percent scored above 681.

Of the 141 COTRANS-sponsored examinees above the candidate mean of 500, 107 (76 percent) had scores within one standard deviation (501-600), while 34 (24 percent) of the above-average examinees were above 600. Among these 34 high achievers were 4 examinees who scored above 700 or 2 standard deviations above the candidate mean.

TABLE 9

Distribution of COTRANS-Sponsored Examinees

Who Passed Part I, 1975 NBME Examinations by Level of Total Scores\*

And by Country of Foreign Medical School

Country of Foreign Medical School Attended (1)	Passing Examinees Per Country		Number of Passing Examinees			
	Number (2)	Percent (3)	380-480 (4)	481-580 (5)	581-680 (6)	681-760 (7)
Total	377	100.0	201	131	39	6
Belgium	73	19.4	37	26	9	1
Dominican Republic	1	.3	1	-	-	-
France	20	5.3	13	6	1	-
Italy	51	13.5	24	18	7	2
Mexico	176	46.7	90	68	15	3
Philippines	26	6.9	20	4	2	-
Spain	6	1.6	5	1	-	-
Switzerland	15	4.0	5	7	3	-
Other †	9	2.4	6	1	2	-

\*Minimum standard score required to pass = 380.

†Includes: Austria, 1; Germany, 1; Iran, 4; Ireland, 2; Jamaica, 1.

Mean standard score for passing COTRANS-sponsored examinees = 489.  
Standard Deviation = 78.

Test performances by country of location of foreign medical school followed the overall distribution pattern for the three largest groups--Mexico, Belgium, and Italy. The highest percentages for all countries occurred in the lowest quarter (380-480), except for Switzerland where the largest proportion occurred in the second quarter (481-580). All countries except the Dominican Republic and Spain were represented in the third quarter (581-680), but students from only three countries--Belgium, Italy, and Mexico--reached the highest quarter (681-760).

e. First-Time and Repeat Mean Scores

Analysis of separate mean scores of first-time test participants versus those of repeat examinees who passed Part I, NBME in 1975 showed somewhat uneven patterns (Table 10). For example, the hypothesis that repeat candidates from foreign medical schools do not improve their test scores with multiple examinations appeared to be true for some countries but not for others. Mean total scores of passing test repeaters from Belgium, Italy, and the Philippines surpassed those of first-time examinees. This point will be investigated further in Phase II of this study when comparisons of first-time versus repeat test scores of the same individuals are expected to be possible.

Mean total scores for all passing examinees were below the mean of 500 of the Candidate Reference Group for Belgium, France, Mexico, and the Philippines, and above the candidate mean for Italy and Switzerland. (The Dominican Republic and Spain are excluded from this comparison because they each had fewer than 10 passing examinees.) Of first-time examinees, Switzerland and Mexico attained mean scores above the candidate mean of 500, while Belgium and Italy scored above 500 in the repeat category. Among "other" countries, the three examinees from Iran showed a first-time mean of 527, while the two examinees from Ireland had a repeat mean of 540.

3. Correlations

For calculation of the correlations between MCAT performance and Part I, NBME performance, it was necessary to reduce the total group of COTRANS-sponsored examinees by 37 percent (from 664 to 421) since only individuals with both MCAT and NBME scores could be considered. The specific intent of the analyses, as summarized in Tables 11, 12, 13, and 14, was to



TABLE 10

Mean Scores of Passing COTRANS-Sponsored Examinees Part I, NBME, 1975

By First-Time and Repeat Status and by Country of Foreign Medical School

Country	Passing Examinees Total			First-Time			Repeaters		
	Number	Percent	Mean Score	Number	Percent	Mean Score	Number	Percent	Mean Score
Total Passing	377	100.0	489	197	100.0	491	180	100.0	487
Belgium	73	19.4	498	54	27.4	490	19	10.5	520
Dominican Republic	1	.3	-	1	.5	-	-	-	-
France	20	5.3	476	17	8.6	478	3	1.7	463
Italy	51	13.5	506	39	19.8	499	12	6.7	526
Mexico	176	46.7	487	46	23.4	511	130	72.2	476
Philippines	26	6.9	456	18	9.1	439	8	4.4	494
Spain	6	1.6	439	4	2.0	445	2	1.1	428
Switzerland	15	4.0	507	12	6.1	514	3	1.7	480
Other*	9	2.4	482	6	3.0	471	3	1.7	503

\* Includes: Austria, 1; Germany, 1; Iran, 4; Ireland, 2; Jamaica, 1.

examine the correlation between Part I, NBME scores and each of the four MCAT subtests: Science, Quantitative, Verbal Ability, and General Information. These calculations were performed for the entire group and also for groups of students from selected countries.

If one considers MCAT Science scores as a predictor of success or failure in medical school, one would assume a positive correlation between performance of the MCAT Science and the Part I, NBME tests. It may also be hypothesized that high correlations between the MCAT Science scores and the NBME scores of students from these countries are evidence of their having benefitted from a relatively high quality of medical education.

a. MCAT Science and Part I, NBME

The results of correlating the MCAT Science subtest and Part I, NBME performance are shown in Table 11. The correlation coefficient ( $r$ ) for all 1975 COTRANS-sponsored examinees who had complete data for both tests was .44, significant at the .001 level. At the 95 percent level of confidence, the true value of  $r$  falls within the .36 to .52 interval. Furthermore, the correlation for the total group is similar to the  $r$  value (.42) found for students at U.S. medical schools for the same variables.\*

For individual countries the  $r$  values ranged from .23 (the Philippines) to .65 (Switzerland), but only three countries showed correlations that were statistically significant at the .001 level: Belgium (.45), Mexico (.39), and Italy (.38). Confidence intervals for these countries all exclude zero and thus indicate a positive correlation between the MCAT Science subtest and the Part I, NBME examination. The highest correlation .65 (significant at the .008 level) was obtained for the small group of 13 from Switzerland. Due to the small number, however, the interval is wide, extending from .14 through .89.

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\* W. E. Sedlacek (Ed.), Medical College Admission Test: Handbook for Admissions Committees, 2nd Ed., Evanston, Ill.: Association of American Medical Colleges, 1967.

TABLE 11

Correlation Coefficients between MCAT Science Scores  
And Part I of 1975 NBME Examinations Total Scores of All COTRANS-Sponsored Examinees  
By Country of Foreign Medical School\*

Country (1)	Examinees No. Percent of Total (2) (3)		Examinees with MCAT No. Percent of Total (4) (5)		MCAT Scores Science Mean S.D. (6) (7)		Part I, NBME Total Scores Mean S.D. (8) (9)		r (10)	95 Percent Confidence Interval (11)
Total	Individuals 664 100.0		421 100.0		531 85		401 140		.44	.36 - .52
Belgium	120	18.1	63	15.0	580	76	435	129	.45	.22 - .63
Dominican Republic	14	2.1	10	2.4	395	55	128	59	.25	-.46 - .77
France	39	5.9	30	7.1	554	80	376	115	.31	-.06 - .61
Italy	88	13.3	62	14.7	540	71	416	143	.38	.14 - .58
Mexico	286	43.1	184	43.7	517	84	409	139	.39	.25 - .50
Philippines	51	7.7	35	8.3	541	68	392	91	.23	-.12 - .53
Spain	23	3.5	10	2.4	481	66	310	141	.31	-.41 - .79
Switzerland	18	2.7	13	3.1	535	112	467	154	.65	.14 - .89
Other	25	3.8	14	3.3	---	---	---	---	---	---

\*Countries with 10 or more students are shown individually. For a listing of "Other" countries, see footnote on Table 6.

b. MCAT Quantitative and Part I, NBME

The correlations between the MCAT Quantitative subtest and Part I, NBME are given in Table 12. The Quantitative mean score of 560 for the total group was 29 points higher than the Science mean. The Quantitative/Part I, NBME correlation of .29 with a confidence interval of .20 through .38 was lower than the Science Part I, NBME correlation of .44. This result closely parallels the correlation coefficient of .28 for the Quantitative subtest reported for students at U.S. medical schools.\*

Among individual countries, only the  $r$  value of .27 for Mexico, with a confidence interval of .13 through .41 was statistically different from zero. The other correlation coefficients ranged from -.15 (Dominican Republic) to .59 (Switzerland), but in each case the corresponding confidence interval (except for Switzerland) included the value zero. In general, the Quantitative scores were not useful in predicting NBME performance for examinees from foreign medical schools.

c. MCAT Verbal Ability and Part I, NBME

The correlation coefficient between the MCAT Verbal Ability subtest and Part I, NBME was .32 (significant at the .001 level) with a confidence interval of .23 through .41 (Table 13). This finding is above the comparable  $r$  value (.19) for students at U.S. medical schools.\* For individual countries, the correlation coefficients for Mexico (.31) and Belgium (.33) were statistically significant at the .001 and .004 levels respectively. The highest correlation, .66 (significant at the .008 level), was observed for the 13 individuals from Switzerland. Therefore, the MCAT Verbal Ability scores showed some correlation to the Part I, NBME scores for these groups.

d. MCAT General Information and Part I, NBME

In correlating the MCAT General Information subtest to Part I, NBME, an  $r$  value of .30 with a confidence interval of .21 through .39 was established for the total COTRANS group (Table 14). The comparable overall  $r$  value for students at U.S. medical schools is .16.\*

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\* W. E. Sedlacek (see footnote p. 26).

TABLE 12

Correlation Coefficients Between MCAT Quantitative Scores  
And Part I of 1975 NBME Examinations Total Scores of All COTRANS-Sponsored Examinees  
By Country of Foreign Medical School\*

Country  (1)	Examinees No. Percent (2) (3) of Total		Examinees with MCAT No. Percent (4) (5) of Total		MCAT Scores Quantitative Mean S.D. (6) (7)		Part I, NBME Total Scores Mean S.D. (8) (9)		r (10)	95 Percent Confidence Interval (11)
Total	I n d i v i d u a l s 664 100.0 421 100.0				T e s t                      D a t a 560 85 401 140 .29 .20 - .38					
Belgium	120	18.1	63	15.0	606	65	435	129	.16	-.10 - .40
Dominican Republic	14	2.1	10	2.4	463	41	128	59	-.15	-.72 - .54
France	39	5.9	30	7.1	591	93	376	115	.28	-.10 - .59
Italy	88	13.3	62	14.7	580	70	416	143	.15	-.10 - .39
Mexico	286	43.1	184	43.7	542	88	409	139	.27	.13 - .41
Philippines	51	7.7	35	8.3	554	67	392	91	.16	-.19 - .48
Spain	23	3.5	10	2.4	511	80	310	141	.51	-.19 - .87
Switzerland	18	2.7	13	3.1	548	104	467	154	.59	.04 - .86
Other	25	3.8	14	3.3	---	---	---	---	---	---

\*Countries with 10 or more students are shown individually. For a listing of "Other" countries, see footnote on Table 6.

TABLE 13

Correlation Coefficients Between MCAT Verbal Ability Scores  
And Part I of 1975 NBME Examinations Total Scores of All COTRANS-Sponsored Examinees  
By Country of Foreign Medical School\*

Country (1)	Examinees No. Percent of Total (2) (3)	Examinees with MCAT No. Percent of Total (4) (5)	MCAT Scores <u>Verbal</u> Mean S.D. (6) (7)	Part I, NBME Total Scores Mean S.D. (8) (9)	r (10)	95 Percent Confidence Interval (11)
Total	I n d i v i d u a l s 664 100.0 421 100.0		T e s t                      D a t a 537 83 401 140 .32 .23 - .41			
Belgium	120 18.1	63 15.0	570 78	435 129	.33	.09 - .54
Dominican Republic	14 2.1	10 2.4	404 39	128 59	.09	-.58 - .69
France	39 5.9	30 7.1	562 72	376 115	.11	-.27 - .46
Italy	88 13.3	62 14.7	541 73	416 143	-.06	-.31 - .20
Mexico	286 43.1	184 43.7	530 83	409 139	.31	.17 - .44
Philippines	51 7.7	35 8.3	527 76	392 91	.23	-.12 - .53
Spain	23 3.5	10 2.4	490 69	310 141	-.03	-.66 - .62
Switzerland	18 2.7	13 3.1	564 80	467 154	.66	.15 - .89
Other	25 3.8	14 3.3	--- ---	--- ---	---	---

\*Countries with 10 or more students are shown individually. For a listing of "Other" countries, see footnote on Table 6.

TABLE 14

Correlation Coefficients Between MCAT General Information Scores  
And Part I of 1975 NBME Examinations Total Scores of All COTRANS-Sponsored Examinees  
By Country of Foreign Medical School\*

Country (1)	Examinees No. Percent of Total		Examinees with MCAT No. Percent of Total		MCAT Scores Gen. Info.		Part I, NBME Total Scores		r (10)	95 Percent Confidence Interval (11)
	(2)	(3)	(4)	(5)	Mean (6)	S.D. (7)	Mean (8)	S.D. (9)		
Total	I n d i v i d u a l s				T e s t                      D a t a					
	664	100.0	421	100.0	538	77	401	140	.30	.21 - .39
Belgium	120	18.1	63	15.0	577	80	435	129	.39	.15 - .58
Dominican Republic	14	2.1	10	2.4	428	68	128	59	.12	-.56 - .70
France	39	5.9	30	7.1	563	62	376	115	.32	-.05 - .62
Italy	88	13.3	62	14.7	541	72	416	143	.12	-.14 - .36
Mexico	286	43.1	184	43.7	533	75	409	139	.21	.06 - .34
Philippines	51	7.7	35	8.3	525	67	392	91	.14	-.21 - .46
Spain	23	3.5	10	2.4	468	70	310	141	.18	-.52 - .73
Switzerland	18	2.7	13	3.1	537	81	467	154	.50	-.08 - .83
Other	25	3.8	14	3.3	---	---	---	---	---	---

\*Countries with 10 or more students are shown individually. For a listing of "Other" countries, see footnote on Table 6.

Among individual countries, only the groups from Belgium (.39) and Mexico (.21) were statistically different from zero. Thus, the MCAT General Information scores of COTRANS participants indicated some correlation to Part I, NBME for two groups of the nine that were studied.

C. Academic Background

1. Ability Levels: MCAT and GPA

a. Comparison of Ability Levels

In comparing ability levels, as measured by MCAT scores and undergraduate grade point averages, it is immediately apparent that the MCAT and GPA means of the 1975 COTRANS group are generally lower than those of the 1973-74 U.S. medical school applicant pool (Table 15). It is noteworthy, however, that the 1975 COTRANS-sponsored examinees who had also applied to U.S. medical schools had slightly higher means on all four MCAT subtests than the non-acceptees for 1973-74. In addition, mean MCAT scores of the 1975 COTRANS group who passed Part I, NBME were consistently above those of the total 1973-74 applicant pool.

Focusing on the Science MCAT, the mean of 553 for passing examinees was 22 points above the 531 for the total COTRANS group, 5 points above that for the total 1973-74 applicant pool, and 29 points higher than the Science mean of 524 for the non-accepted U.S. medical school applicants. Conversely, the mean of 553 for the passing COTRANS group was 39 points below the 592 for 1973-74 U.S. medical school acceptees. The standard deviation of 76 for passing COTRANS candidates was close to the standard deviation of 79 for accepted U.S. medical school applicants.

b. Application Frequencies

Mean MCAT Science scores and mean GPAs of COTRANS-sponsored examinees are also presented by frequency of applications filed to U.S. medical schools for 1973-74 (Table 16). Nearly 20 percent of the COTRANS candidates filed only one application although their mean MCAT Science scores were below 500 and their GPAs below 3.00. This compares with 17 percent of all U.S. medical school

52



TABLE 15  
Comparison of Mean Scores of MCAT Subtests and Mean Grade Point Averages  
Of COTRANS-Sponsored Examinees, Part I of 1975 NBME Examinations  
With Applicants to U.S. Medical Schools, 1973-74 First-Year Class

Category (1)	1975 COTRANS-Sponsored Examinees			Applicants to U.S. Medical School 1973-74 First-Year Class*		
	Passing Part I, NBME (2)	Failing Part I, NBME (3)	Total Group (4)	Accepted (5)	Non-Accepted (6)	Total Group (7)
Total Number Participating	377	287	664	14,335	26,171	40,506
Total Number With MCAT	246	175	421	14,062	25,217	39,279
<u>MCAT Subtest†</u>						
Verbal Ability (S.D.)†	553 78	513 85	537 83	567 88	518 94	535 95
Quantitative Ability (S.D.)†	576 75	538 94	560 85	609 85	550 96	571 96
General Information (S.D.)†	553 76	518 75	538 77	563 80	521 81	536 83
Science (S.D.)†	553 76	502 87	531 85	592 79	524 93	548 94
Total Number With GPA	200	128	328	12,230	15,767	33,165‡
<u>Type of GPA</u>						
BCPM** (S.D.)	2.68 .40	2.64 .46	2.67 .42	3.37 .46	2.87 .49	3.07 .54
Non-Science (S.D.)	2.68 .40	2.64 .46	2.67 .42	3.39 .41	3.02 .45	3.16 .47
Total GPA (S.D.)	2.81 .33	2.77 .37	2.79 .35	3.38 .39	2.95 .41	3.12 .46

\*Most of the 1975 COTRANS participants applied to U.S. medical schools for places in the 1973 First-Year Class.

†Source: AAMC Applicant Study and AAMC Applicant Datagram for 1973-74.

‡Source: AAMC Admission Action Summary, 1973-74. This total includes 5 application action report categories besides "Accepted" and "Non-Accepted."

\*\*Biology, Chemistry, Physics and Mathematics

TABLE 16

Application Frequency and Ability Levels of 1975 COTRANS-Sponsored  
Examinees Who Applied to U.S. Medical Schools, 1973-74 First-Year Class

Application Frequency Groups*	COTRANS-Sponsored Examinees Who Also Applied to U.S. Medical Schools		Ability Levels	
	Number (2)	Percent (3)	Mean MCAT Science Scores (4)	Mean Total Grade Point Averages (5)
Total	430	100.0	531.	2.78
1	84	19.5	496	2.69
2 to 5	64	14.9	530	2.73
6 to 8	61	14.2	535	2.74
9 to 11	49	11.4	528	2.77
12 to 15	53	12.3	524	2.77
16 to 20	49	11.4	548	2.87
21 to 25	38	8.8	556	2.81
26 to 30	12	2.8	549	2.69
31 and over	20	4.7	578	2.97

\*By number of applications per applicant

Mean application frequency = 11.1; maximum number of applications = 59.  
Median applications filed = 9.12.

applicants for 1973-74 who filed single applications and had mean MCAT Science scores of 522 and mean GPAs of 3.05.\*

Multiple applications for the COTRANS group ranged from 2 to 59. Their average number of applications was 11.1, which compares with 8.1 for the 1973-74 pool. Nearly 28 percent of the COTRANS candidates filed more than 15 applications each, in contrast to 12.6 percent of the total 1973-74 applicant pool.

\* W. F. Dubé and D. G. Johnson, "Study of U.S. Medical School Applicants, 1973-74," Journal of Medical Education, 50 (1975). pp. 1015-1032.

In general, application frequencies for COTRANS-sponsored examinees increased as their MCAT Science means progressed upward. This repeats the pattern observed for 1973-74 U.S. medical school applicants. In contrast to the 1973-74 pool, however, the GPAs of the COTRANS group also tended to increase as their application frequencies rose. Thus, the highest frequency group of 31-59 applications was accompanied by an MCAT Science mean of 578 and a mean GPA of 2.97, the highest means listed.

2. Undergraduate Origin by Type of College

a. Public/Private Control

Closely related to the ability levels of COTRANS candidates are the undergraduate institutions they attended. The overall summary presented in Table 17 reveals that slightly more than half (51.4 percent) of the COTRANS examinees came from privately controlled colleges, while 47.4 percent were from publicly controlled schools. (The type of control for schools of the remaining 1.2 percent was unknown.)

In terms of Part I, NBME performance, 54.6 percent of the successful COTRANS candidates were from private colleges, and 44.8 percent were from public schools (0.6 percent were unknown). Conversely, 50.9 percent of the failing examinees were from public colleges as compared with 47.0 percent from private schools. (For 2.1 percent of the failing group, the control of school was unknown.)

In comparing Part I, NBME pass rates of the two populations, a difference of 6.7 percentage points in favor of private schools was observed. Of the 341 students from private schools, 60.4 percent passed versus 53.7 percent of the 315 students from public schools.

b. Regional Location

An analysis of public and private undergraduate institutions by geographical location and by Part I, NBME

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\* W. F. Dubé and D. G. Johnson (see footnote p. 34).

TABLE 17

Comparison of Pass Rates, Part I of 1975 NBME Examinations  
Of COTRANS-Sponsored Examinees by Control of Undergraduate Institution

Pass Rates (1)	All Schools		Public Schools			Private Schools			Unknown		
	No. (2)	Percent (3)	No. (4)	Percent of Total of 315 (5)	Percent of 315 (6)	No. (7)	Percent of Total of 341 (8)	Percent of 341 (9)	No. (10)	Percent of Total of 8 (11)	Percent of 8 (12)
Total Sponsored	799	100.0	373	46.7	---	415	51.9	---	11	1.4	---
Total Tested	664	100.0	315	47.4	100.0	341	51.4	100.0	8*	1.2	100.0
Passed Part I, NBME	377	56.8	169	44.8	53.7	206	54.6	60.4	2†	.6	25.0
Failed Part I, NBME	287	43.2	146	50.9	46.3	135	47.0	39.6	6	2.1	75.0

\*4 listed Canadian undergraduate colleges

†From Canadian undergraduate colleges

performance discloses generally higher pass rates for students who attended private schools (Table 18). In the regions with more than 30 candidates, Part I, NBME passing percentages for students from public schools were in the 50s for Regions II, IV, and V, and at 65.5 percent for Region IX; while the comparable percentages for private schools were in the 60s for Regions I, II, and III, and were at 70.6 percent for Region V.

c. Origin by Foreign Country

If one pursues the undergraduate college origin of COTRANS candidates by country of foreign medical school attended, the percentages are higher for private schools in six of the eight countries with groups of 10 or more examinees (Table 19). More students from public colleges attended medical schools in Mexico and in the Dominican Republic. The chi square goodness of fit test showed a value of 9.13 (7df),  $p > .10$ , which was not significant at the .05 level. This finding concludes that there are no significant differences between the undergraduate origin of COTRANS-sponsored examinees. An exception to this may be the group from Switzerland, but the N is rather small. Of the 18 in this group, 7 had attended public and 11 had attended private undergraduate colleges.

3. Distribution by GPA and MCAT Science Score Quadrants

a. 1975 COTRANS Data

Perhaps the most interesting of the academic background analyses is the comparison of GPA/MCAT distributions, by quadrant, of 1975 COTRANS participants with 1973-74 U.S. medical school applicants (Table 20). Of the 799 COTRANS-sponsored participants, 492 had previous U.S. medical school application activity, but only 374 (46.8 percent) had records of both GPA and MCAT scores. Therefore, the distribution over the four GPA/MCAT quadrants is limited to these 374 individuals with complete records. In spite of this limitation, a rather striking profile emerges. A chi square was used to test the proportional difference between accepted and non-accepted applicants to U.S. medical schools in 1973-74 per ability group (columns 7 & 10; 13 & 16). The resulting chi square of 5,576.75 (3df),  $p < .01$ , clearly shows the existence of major differences between acceptees and non-acceptees.

TABLE 18

Undergraduate Colleges Attended by COTRANS-Sponsored Examinees,  
Part I of 1975 NBME Examinations by Region\*, Control of School, Sex, and Pass Rate

Region (1)	State of Location (2)	Sponsored Men/Women/Total			Tested Men/Women/Total			Passing Examinees			
		(3)	(4)	(5)	(6)	(7)	(8)	Men/Women (9) (10)	Total No. (11)	Percent† (12)	
	<u>PUBLIC SCHOOLS</u>										
I	Maine, Vermont, Massachusetts, Connecticut, Rhode Island, New Hampshire	14	5	19	13	5	18	6	4	10	55.6
II	New York, New Jersey, Puerto Rico, Virgin Islands	140	14	154	122	11	133	61	6	67	50.4
III	Pennsylvania, Delaware, District of Columbia, Maryland, Virginia, West Virginia	27	1	28	22	1	23	8	1	9	39.1
IV	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee	32	2	34	28	2	30	14	1	15	50.0
V	Illinois, Indiana, Ohio, Minnesota, Michigan, Wisconsin	39	2	41	30	-	30	16	-	16	53.3
VI	Arkansas, New Mexico, Oklahoma, Texas, Louisiana	13	-	13	11	-	11	6	-	6	54.5
VII	Iowa, Kansas, Missouri, Nebraska	5	-	5	3	-	3	1	-	1	33.3
VIII	Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming	12	-	12	8	-	8	6	-	6	75.0
IX	Arizona, California, Hawaii, Nevada, Trust Territories	57	6	63	49	6	55	36	-	36	65.5
X	Alaska, Idaho, Oregon, Washington	4	-	4	4	-	4	3	-	3	75.0
	Total Public Schools	343	30	373	290	25	315	157	12	169	53.8

(Table 18 continued)

Region (1)	State of Location (2)	Sponsored Men/Women/Total			Tested Men/Women/Total			Passing Examinees Men/Women Total No. Percent†			
		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	<u>PRIVATE SCHOOLS†</u>										
I	Maine, Vermont, Massachusetts, Connecticut, Rhode Island, New Hampshire	52	6	58	47	4	51	29	2	31	60.8
II	New York, New Jersey, Puerto Rico, Virgin Islands	166	18	184	134	14	148	87	6	93	62.8
III	Pennsylvania, Delaware, District of Columbia, Maryland, Virginia, West Virginia	58	4	62	42	4	46	26	2	28	60.1
IV	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee	21	2	23	18	2	20	8	1	9	45.0
V	Illinois, Indiana, Ohio, Minnesota, Michigan, Wisconsin	37	3	40	32	2	34	24	-	24	70.6
VI	Arkansas, New Mexico, Oklahoma, Texas, Louisiana	8	1	9	7	1	8	2	-	2	25.0
VII	Iowa, Kansas, Missouri, Nebraska	11	1	12	9	1	10	6	-	6	60.0
VIII	Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming	5	-	5	5	-	5	4	-	4	80.0
IX	Arizona, California, Hawaii, Nevada, Trust Territories	20	2	22	17	2	19	8	1	9	50.0
	Total Private Schools	378	37	415	311	30	341	194	12	206	60.6
	Canada	4	-	4	3	-	3	2	-	2	66.7
	Unknown	4	3	7	2	3	5	-	-	-	-
	ALL SCHOOLS	729	70	799	605	58	664	353	24	377	56.8

\*Regions are divided as designated by HEW.

†There were no COTRANS candidates from Private Schools in Region X.

‡Should be interpreted with caution when numbers are low.

TABLE 19  
Distribution of COTRANS-Sponsored Examinees by Country of  
Foreign Medical School and by Undergraduate School, 1975 Test Year

Country of Foreign Medical School (1)	Proportion by Country		Type of Undergraduate Institution Attended				Unknown	
	No. (2)	Percent (3)	Public No. (4)	Percent (5)	Private No. (6)	Percent (7)	No. (8)	Percent (9)
Total	664	100.0	315	47.4	341	51.4	8	1.2
Mexico	286	100.0	151	52.8	134	46.9	1	.3
Belgium	120	100.0	53	44.2	66	55.0	1	.8
Italy	88	100.0	32	36.4	55	62.5	1	1.1
Philippines	51	100.0	24	47.0	26	51.0	1	2.0
France	39	100.0	18	46.2	19	48.7	2	5.1
Spain	23	100.0	10	43.5	13	56.5	-	-
Switzerland	18	100.0	7	38.9	11	61.1	-	-
Dominican Republic	14	100.0	11	78.6	3	21.4	-	-
Other*	25	100.0	9	36.0	14	56.0	2	8.0

\*Includes Argentina, 2; Austria, 1; Colombia, 1; Cuba, 1; German Federal Republic, 2; Greece, 1; Iran, 8; Ireland, 3; Jamaica, 1; Poland, 2; Portugal, 1; United Arab Republic, 1; United Kingdom, 1.

Chi square value for entire table = 9.13 (7df),  $p > .10$ .



TABLE 20

## Distribution of Applicants and Acceptees

By Undergraduate College Overall Grade Point Average and by MCAT Science Subtest Scores,  
1973-74 First-Year Class for Comparison with the 1975 COTRANS-Sponsored Candidates

Category (1)	Total No.    Percent (2)    (3)		Total With Known GPA and MCAT Scores No.    Percent of (4)    Col.2 Col.4 (5)    (6)		Q U A D R A N T												
					GPA 3.0 - 4.0						GPA 0.0 - 2.9						
					I MCAT 505 - 795 No.    Percent of (7)    Col.7 Col.4 (8)    (9)			II MCAT 205 - 495 No.    Percent of (10)    Col.10 Col.4 (11)    (12)			III MCAT 205 - 495 No.    Percent of (13)    Col.13 Col.4 (14)    (15)			IV MCAT 505 - 795 No.    Percent of (16)    Col.16 Col.4 (17)    (18)			
COTRANS-Sponsored Candidates	799	100.0	492	61.6	100.0	76*	100.0	15.4	31*	100.0	6.1	86*	100.0	17.5	181*	100.0	36.8
All Applicants	40,506	100.0	32,668	80.6	100.0	17,317	100.0	53.0	3,309	100.0	10.1	5,039	100.0	15.4	7,003	100.0	21.4
Accepted	14,335	35.4	12,447	86.8	38.1	9,826†	56.7	78.9	805†	24.3	6.5	568†	11.3	4.6	1,248†	17.8	10.0
Non-Accepted	26,171	64.6	20,221	77.3	61.9	7,491†	41.3	37.0	2,504†	75.7	12.4	4,471†	88.7	22.1	5,755†	82.2	28.5

\*Only individuals with both MCAT scores and GPA records were counted; 118 had incomplete records.

†Chi square value for Accepted versus Non-Accepted = 5,576.75 (3df),  $p < .01$ .

b. 1975 COTRANS versus 1973-74 Applicant Pool

In grade/score combination Quadrants II and III, the relatively low percentages of COTRANS participants approximate the proportions of the total U.S. medical school applicant pool for 1973-74 in those quadrants. Contrasts can be observed, however, in Quadrant IV which combines low GPAs (0.0 - 2.9) with high MCAT scores (505 - 795) and Quadrant I which contains the upper range of both GPAs (3.0 - 4.0) and MCATs (505 - 795). The former asymmetrical grade/score combination was characteristic of 36.8 percent of the COTRANS group, as compared with 21.4 percent of the total 1973-74 applicant pool. The largest differences between these groups occurred in Quadrant I for which only 15.4 percent of the COTRANS candidates qualified, in contrast to 53.0 percent of all 1973-74 U.S. medical school applicants.

c. COTRANS Candidates in Quadrant I

Since nearly 80 percent of all accepted 1973-74 applicants to U.S. medical schools had Quadrant I combinations of high grades and high MCAT Science scores, a more detailed analysis was conducted of the 76 COTRANS candidates with these qualifications. A special listing of basic data profiles for each of these 76 students was produced to allow for individual comparisons of their grade/score relationships.

The overall impression of their grade/score combinations is one of imbalance. For example, about one-third of this group had MCAT Science scores above 600, but only 10 percent had GPAs above 3.40. Of the four individuals with both high grades and high MCAT Science scores as defined above, one was approaching age 30, one was close to age 40, and two were age 21 and 22 at the time they would have entered U.S. medical schools. Two of these four individuals had attended private undergraduate colleges, while the other two had completed their undergraduate education at public schools. For the entire COTRANS group in Quadrant I, the uneven combinations of grades and science scores may have been partly responsible for their not being accepted to U.S. medical schools.

D. Demographic Information

1. State of Residence

a. COTRANS-Sponsored Examinees

At this point, the course of the study alters direction and turns from the academic to the demographic characteristics of COTRANS-sponsored examinees. The first concern addresses their geographical origin by state of residence. As observed in past years,\* more than half (510) of the 799 COTRANS participants in 1975 came from three states (Table 21). In fact, New York, New Jersey, and California contributed 434 or 65.4 percent of the 1975 total of COTRANS-sponsored examinees. Six additional states (Florida, 37; Pennsylvania, 24; Illinois, 16; Massachusetts, 18; Texas, 16; and Connecticut, 18) and the Commonwealth of Puerto Rico, 21, contributed 150 or 22.6 percent of the 664 examinees. Consequently, nine states and Puerto Rico supplied 88.0 percent of all 1975 COTRANS-sponsored examinees.

b. Part I, NBME Performance

Nearly half (46.4 percent) of the 377 passing COTRANS-sponsored examinees were from New York. New Jersey and California were represented by 15.1 and 11.1 percent respectively, but less than 5 percent each were from the remaining states. Pass rates for individuals from several states were relatively high. Of the ten areas with 10 or more examinees, the following percentages were recorded: California, 64.6 (42 of 65 passed); New York, 63.2; New Jersey, 62.0; Connecticut, 61.1; Illinois, 56.3; Pennsylvania, 50.0; Florida, 48.6; Massachusetts, 44.4; Texas, 37.5, and Puerto Rico, 0.0. Thus, the three largest state groups and the Connecticut students showed the best Part I, NBME performance. These pass rates were derived from Table 21.

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\* W. F. Dubé (see footnote p. 17).

TABLE 21

Distribution of COTRANS-Sponsored Examinees, Part I of 1975

NBME Examinations by State of Residence

State of Legal Residence Ranked by Number Sponsored (1)	Sponsored		Examinees		Passing Part I, NBME	
	Number (2)	Percent (3)	Number (4)	Percent (5)	Number (6)	Percent* (7)
Total	799	100.0	664	100.0	377	100.0
New York	327	41.0	277	41.7	175	46.4
New Jersey	108	13.6	92	13.9	57	15.1
California	75	9.4	65	9.8	42	11.1
Florida	43	5.4	37	5.6	18	4.8
Pennsylvania	30	3.8	24	3.6	12	3.2
Illinois	22	2.8	16	2.4	9	2.4
Massachusetts	21	2.6	18	2.7	8	2.1
Texas	21	2.6	16	2.4	6	1.5
Connecticut	19	2.4	18	2.7	11	2.9
Ohio	15	1.9	9	1.3	5	1.3
Maryland	10	1.3	8	1.2	4	1.1
Arizona	9	1.1	8	1.2	5	1.3
Virginia	9	1.1	9	1.4	4	1.1
Michigan	7	.9	7	1.0	4	1.1
Colorado	6	.7	2	.3	2	.5
Rhode Island	5	.6	4	.6	1	.3
Kansas	4	.5	4	.6	0	-
Missouri	4	.5	4	.6	1	.3
Wisconsin	4	.5	2	.3	1	.3
Alabama	3	.4	2	.3	0	-

\*Percentages do not add due to rounding and should be regarded with caution because of small N's.

(Table 21 continued)

State of Legal Residence Ranked by Number Sponsored (1)	Sponsored		Examinees		Passing Part I, NBME	
	Number (2)	Percent (3)	Number (4)	Percent (5)	Number (6)	Percent* (7)
Georgia	3	.4	3	.4	3	.8
Indiana	3	.4	2	.3	1	.3
Utah	3	.4	3	.4	3	.8
New Hampshire	2	.3	1	.2	0	-
Tennessee	2	.3	2	.3	0	-
West Virginia	2	.3	1	.1	1	.3
Hawaii	1	.1	1	.1	0	-
Idaho	1	.1	1	.2	1	.3
Kentucky	1	.1	0	-	0	-
Louisiana	1	.1	0	-	0	-
Maine	1	.1	1	.2	0	-
Minnesota	1	.1	1	.2	1	.3
Mississippi	1	.1	1	.2	0	-
North Carolina	1	.1	1	.2	1	.3
Vermont	1	.1	0	-	0	-
District of Columbia	1	.1	1	.1	0	-
Puerto Rico	25	3.1	21	3.2	0	-
U.S. Territories	0	-	0	-	0	-
Unknown	6	.8	2	.3	1	.3
Foreign	1	.1	0	-	0	-

\*Percentages do not add due to rounding and should be regarded with caution because of small N's.

## 2. Age Distribution

### a. Overview

The age distribution in Table 22 shows a heavy concentration of COTRANS-sponsored examinees aged 24, 25, and 26, who accounted for 54.5 percent of the total group and for 57.6 percent of all passing examinees. Examinees below 24 were represented by 12.6 percent in the total group and by 10.3 percent in the passing group. Candidates aged 28 or older accounted for 20.8 percent of the total and for 19.6 percent of the passing group.

Pass rates were below 50 percent for both the youngest (ages 22 or less) and the oldest (ages 32 or more) COTRANS-sponsored examinees, and above 50 percent for most of the remaining age groups. Exceptional passing percentages in the 70s were achieved by those aged 28 and 29. Even higher pass rates were attained by the 13 women aged 26, 28, and 29, with respective percentages of 83.3, 80.0, and 100.0.

### b. Comparison of Ages by Sex

Although the representation of women in the COTRANS group is relatively small (8.7 percent), a comparison of separate age distributions of women versus men yielded some interesting results. For the total test population, for example, 63.8 percent of all women were 27 or younger while 36.2 percent were 28 or older; comparative percentages for men were 80.7 below age 28, and 19.3 for ages 28-53. Their mean ages were 26.1 for men and 27.5 for women.

Even more dramatic is the contrast in proportions for passing examinees. Of the women who passed, 54.2 percent were 27 or younger, while 45.8 percent were 28 or older. Of the men who passed, 82.2 percent were age 27 or younger, and only 17.8 percent were older than 27. These differences in ages of successful men and women COTRANS candidates tend to correspond to the age differences in acceptance success of men and women who apply to U.S. medical schools.\*

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\* W. F. Dubé and D. G. Johnson (see footnote p. 34).

TABLE 22

Pass Rates of COTRANS-Sponsored Examinees, by Age  
And by Sex, Part I of 1975 NBME Examinations

Age* (1)	All Examinees				Passing Examinees					
	Percent (2)	Number			Total		Men		Women	
		Total (3)	Men (4)	Women (5)	No. (6)	Percent (7)	No. (8)	Percent (9)	No. (10)	Percent (11)
Total†	100.0	664	606	58	377	56.7	353	58.2	24	41.4
21	.4	3	2	1	1	33.3	1	50.0	0	0.0
22	2.0	13	11	2	3	23.1	3	27.3	0	0.0
23	10.2	68	62	6	35	51.5	34	54.8	1	16.7
24	16.7	111	100	11	68	61.3	64	64.0	4	36.4
25	20.3	135	129	6	77	57.0	77	59.7	0	0.0
26	17.5	116	110	6	72	62.1	67	60.9	5	83.3
27	12.0	80	75	5	47	58.8	44	58.7	3	60.0
28	5.3	35	30	5	25	71.4	21	70.0	4	80.0
29	3.6	24	20	4	18	75.0	14	70.0	4	100.0
30	4.1	27	25	2	14	51.9	14	56.0	0	0.0
31	1.8	12	11	1	6	50.0	5	45.5	1	100.0
32 - 37	4.4	29	24	5	7	24.1	6	25.0	1	20.0
38 and over‡	1.7	11	7	4	4	36.4	3	42.9	1	25.0

\*As of April 1975

†Mean age for all examinees was 26.2; for men - 26.1; and for women - 27.5.

‡Oldest male examinee was 53; he passed.

Oldest female examinee was 42, and oldest female examinee passing was 38.

### 3. Self-Description

#### a. Overview

Racial/ethnic self-description data shown in Table 23 are limited to 279 individuals or 42 percent of the entire 1975 COTRANS group. Only incomplete data are available because (1) the COTRANS application form does not require any racial/ethnic identification, and (2) this information is optional on AMCAS application forms and on MCAT questionnaires. Of those COTRANS participants who had also applied to U.S. medical schools and of the 279 who had responded to the self-description question, 244 (87.5 percent) were Caucasian. The remaining 35 comprised 2 American Indians, 13 Hispanic Americans, 3 Oriental Americans, and 17 "Other" minority students.

TABLE 23

Comparison of 1975 COTRANS-Sponsored Examinees  
With Applicants to U.S. Medical Schools, 1973-74 First-Year Class  
By Percentage of Total per Category for Self-Description

Category	1975 COTRANS-Candidates			1973-74 U.S. Medical School Applicants		
	Number	Percent	% Responses N=279	Number	Percent	% Responses N=28,353
Total	430	100.0	100.0	40,506	100.0	100.0
Black/Afro-American	0	0.0	0.0	2,227	5.5	7.9
American Indian	2	.4	.7	240	.5	.8
White/Caucasian	244	56.7	87.5	22,621	56.3	80.5
Hispanic American*	13	3.0	4.7	639	1.6	2.3
Oriental/Asian-American	3	.7	1.1	911	2.2	3.2
Other	17	4.0	6.1	1,508	3.7	5.3
No Response	151	35.1	---	12,153	30.0	---

\* Includes Mexican Americans and Mainland Puerto Ricans for 1975 COTRANS group.  
Includes Mexican Americans, Mainland Puerto Ricans, Island Puerto Ricans and Cubans for 1973-74 U.S. Medical School Applicants.



b. 1975 COTRANS Group versus 1973-74 Applicant Pool

On the whole, the racial/ethnic composition of the 1975 COTRANS group approximated that of the 1973-74 applicant pool for U.S. medical schools (Table 23). There was a slightly larger proportion of Hispanic Americans in the COTRANS group and a smaller proportion of Oriental Americans. The most striking difference, however, was the absence of self-identified black Americans in the COTRANS group.

c. Distribution by Country of Medical School

The largest groups of Caucasians were in Mexico, 46.3 percent; Belgium, 17.2 percent; and Italy, 13.1 percent (Table 24). Of the 13 Hispanic Americans who had studied abroad, 7 attended medical schools in the Dominican Republic, 3 in Mexico, 2 in the Philippines, and 1 in Spain. Of the three American Orientals, two listed medical schools in Mexico and one in Egypt. The two American Indians had studied medicine in Belgium and France respectively. Seven of the 17 "Other" minorities studied in Mexico, while the remainder attended schools in all countries shown except the Philippines and Switzerland.

d. Part I, NBME Performance

A comprehensive analysis of Part I, NBME test results by self-description is precluded because of the 35.1 percent proportion of the "No Response" category (Table 25). Of the data shown, the pass rates for the 1975 Part I, NBME test were highest for the Caucasians, 65.9 percent. Of the 13 Hispanic Americans, 3 passed (23 percent), while 1 of the 2 American Indians and 1 of 3 American Orientals were successful. The passing percentages for all categories except Caucasians must be regarded with great caution since their numbers are rather small.

TABLE 24

Distribution of COTRANS-Sponsored Examinees  
By Self-Description and by Country of Foreign Medical School

1975 Test Year

Country of Foreign Medical School	Total Per Country		Caucasian		Black American		American Indian		Hispanic†		Oriental American		Other		No Response	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	430*	100.0	244	56.7	-	-	2	.5	13	3.0	3	.7	17	4.0	151	35.1
Belgium	63	100.0	42	66.7	-	-	1	1.6	-	-	-	-	1	1.6	19	30.2
Dominican Republic	10	100.0	-	-	-	-	-	-	7	70.0	-	-	2	20.0	1	10.0
France	30	100.0	19	63.3	-	-	1	3.3	-	-	-	-	1	3.3	9	30.0
Italy	64	100.0	32	50.0	-	-	-	-	-	-	-	-	3	4.7	29	45.3
Mexico	190	100.0	113	59.5	-	-	-	-	3	1.6	2	1.1	7	3.7	65	34.2
Philippines	35	100.0	18	51.4	-	-	-	-	2	5.7	-	-	-	-	15	42.9
Spain	10	100.0	6	60.0	-	-	-	-	1	10.0	-	-	3	30.0	-	-
Switzerland	13	100.0	7	53.8	-	-	-	-	-	-	-	-	-	-	6	46.2
Other	15	100.0	7	46.7	-	-	-	-	-	-	1	6.6	-	-	7	46.7

\* Self-Description Information is limited to the 430 COTRANS Participants who also applied to U.S. medical schools.

† Includes Mexican Americans and Mainland Puerto Ricans.

TABLE 25

MCAT Scores and Undergraduate College Grades of COTRANS-Sponsored Examinees  
By Self-Description and by Pass/Fail Status, Part I of the 1975 NBME Examinations

Examinees by Self-Description (1)	No. with MCATS (2)	%	Mean MCAT Scores				No. with GPAs (8)	%	Mean UG GPAs			Total Number (13)	%
			VER (4)	QUA (5)	GEN (6)	SCI (7)			BCPM (10)	AO (11)	TOTAL (12)		
BLACK/AFRO-AMERICAN													
PASSED	0	0.0	000	000	000	000	0	0.0	0.00	0.00	0.00	0	0.0
FAILED	0	0.0	000	000	000	000	0	0.0	0.00	0.00	0.00	0	0.0
TOTAL	0	0.0	000	000	000	000	0	0.0	0.00	0.00	0.00	0	0.0
AMERICAN INDIAN													
PASSED	1	50.0	635	595	555	525	1	50.0	2.00	2.00	2.00	1	50.0
FAILED	1	50.0	635	585	645	655	1	50.0	2.00	3.00	3.00	1	50.0
TOTAL	2	0.4	635	590	600	590	2	0.6	2.50	2.50	2.50	2	0.4
WHITE/CAUCASIAN													
PASSED	161	65.9	554	576	555	555	136	67.0	2.72	2.90	2.81	161	65.9
FAILED	83	34.0	521	541	529	506	67	33.0	2.62	2.99	2.74	83	34.0
TOTAL	244	57.9	543	564	546	538	203	61.8	2.68	2.90	2.79	244	56.7
ORIENTAL/ASIAN-AMERICAN													
PASSED	1	33.3	445	565	505	495	1	33.3	2.00	3.00	2.00	1	33.3
FAILED	2	66.6	390	525	435	385	2	66.6	2.50	2.50	2.50	2	66.6
TOTAL	3	0.7	408	538	458	421	3	0.9	2.33	2.66	2.33	3	0.7
HISPANIC *													
PASSED	3	23.0	461	561	478	461	1	16.6	2.00	2.00	2.00	3	23.0
FAILED	10	76.9	440	461	437	411	5	83.3	2.40	3.00	2.80	10	76.9
TOTAL	13	3.0	445	484	446	422	6	1.8	2.50	3.00	2.66	13	3.0
OTHER													
PASSED	5	29.4	525	591	537	525	4	29.6	2.50	3.00	2.75	5	29.4
FAILED	12	70.5	472	535	492	510	11	73.3	2.81	2.90	2.81	12	70.5
TOTAL	17	4.0	487	552	505	515	15	4.5	2.80	3.00	2.86	17	3.9
NO RESPONSE													
PASSED	75	52.8	557	575	552	553	57	57.5	2.59	2.92	2.77	80	52.9
FAILED	67	47.1	522	545	520	508	42	42.4	2.59	2.35	2.71	71	47.0
TOTAL	142	33.7	540	560	537	532	99	30.1	2.59	2.90	2.75	151	35.1
TOTAL													
PASSED	246	58.4	553	575	552	552	200	60.9	2.68	2.92	2.80	251	58.3
FAILED	175	41.5	513	538	517	501	128	39.0	2.63	2.90	2.76	179	41.6
TOTAL	421	100.0	536	560	538	531	328	100.0	2.66	2.91	2.73	430	100.0

\* Includes Mexican Americans and Mainland Puerto Ricans

#### 4. Parental Income

##### a. Overview

It has been alleged that most Americans who attend medical schools in other countries belong to an economically privileged class. Parental income data derived from the applicant system of MSIS lend some support to this allegation since the estimated income median of \$17,900 for COTRANS-sponsored examinees is \$3,100 higher than the income median of \$14,800 for the 1973-74 applicant pool (Table 26).

It is possible, however, for some students from lower-economic backgrounds to study medicine abroad, because many foreign medical schools are state-supported and charge no tuition. Expenses would comprise nominal fees for registrations and examinations, plus the cost of books, instruments, transportation, and living costs. Only privately financed foreign medical schools charge sizable tuitions.

##### b. Income Distribution

Even though available data are limited to 281 or 65.3 percent of the total due to the 34.7 percent of "No Responses," the proportional percentages per income category clearly demonstrate that the 1975 COTRANS group came from wealthier family backgrounds than the 1973-74 applicants to U.S. medical schools. For example, only 19.9 percent of the COTRANS candidates had parental incomes below \$10,000, as compared with 27.0 percent of the general applicants. Similarly, a 43.8 percent of the former and 32.9 percent of the latter came from families with incomes above \$20,000.

Testing the overall distributions of parental incomes, the chi square showed a difference of 16.39 (4df) that was significant at the .01 level. Focusing on middle-income students only (\$10,000 - \$19,999), the significant chi square of 13.91 (2df) indicates that the observed differences in the proportional representation are not due to chance.

It should be noted that the given percentages reflect 1970 and 1971 income levels, since the MCAT questionnaire and the U.S. medical school application form request income information for the year prior to completion of the data-gathering instrument.

TABLE 26

Comparison of 1975 COTRANS-Sponsored Examinees  
With Applicants to U.S. Medical Schools, 1973-74 First-Year Class  
By Percentage of Total per Category for Parental Income Level\*

Category	1975 COTRANS-Candidates			1973-74 U.S. Medical School Applicants		
	No.	Percent	% Responses N=281	No.	Percent	% Responses N=30,859
Total	430	100.0	100.0	40,506	100.0	100.0
Less than \$5,000	16	3.7	5.7	2,685	6.6	8.7
\$5,000 - 9,999	40	9.3	14.2	5,650	13.9	18.3
\$10,000 - 14,999	62	14.4	22.1	7,483	18.4	24.2
\$15,000 - 19,999	40	9.3	14.2	4,886	12.0	15.8
\$20,000 or more	123	28.6	43.8	10,155	25.1	32.9
No Response	149	34.7	--	9,647	23.8	--
Estimated Median	--	--	\$17,900	--	--	\$14,800

Chi square for entire table = 16.39 (4df),  $p < .01$ .

\*Gross combined parental income for year prior to applicants' completion of the Medical College Admission Test (MCAT) Questionnaire.

c. Income Medians

Median parental incomes of the COTRANS group were higher than the medians of the total 1973-74 applicant pool in all categories. By test performance, the medians of COTRANS-sponsored examinees were \$19,000 for passing, \$15,700 for failing, and \$17,900 for all examinees. Somewhat lower medians were recorded for the 1973-74 pool of applicants to U.S. medical schools. Their median parental income amounted to \$15,600 for acceptees, \$14,400 for non-acceptees, and \$14,800 for all applicants.

In view of the fact that all of the COTRANS candidates in this analysis had been part of the "Non-Accepted" portions of the 1972-73 and/or the 1973-74 U.S. medical school applicant pools, their comparable median parental incomes are of particular interest. This income median was \$3,500 (or 24.3 percent) higher for the COTRANS group than for non-accepted applicants in general.

COTRANS-sponsored examinees from the wealthier backgrounds had higher Part I, NBME pass rates than those from the lower-income levels (Table 27). The passing percentages for the three intervals below \$15,000 were in the 50s, while the two groups at or above the \$15,000 level were in the 60s.

TABLE 27

## MCAT Scores and Undergraduate College Grades of COTRANS-Sponsored Examinees

By Parental Income and by Pass/Fail Status, Part I of the 1975 NBME Examinations

Examinees by Parental Income	No. with MCATS	% with MCATS	Mean MCAT Scores				No. with GPAs	% with GPAs	Mean UG GPAs			Total Number	%
			VER	QUA	GEN	SCI			BCPM	AO	Total		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
LESS THAN \$5,000													
PASSED	9	56.2	572	627	547	553	8	57.1	2.37	2.75	2.62	9	56.2
FAILED	7	43.7	472	493	457	406	6	42.8	2.66	2.66	2.66	7	43.7
TOTAL	16	3.9	528	568	508	439	14	4.2	2.57	2.71	2.64	16	3.7
\$5,000 - \$9,999													
PASSED	21	52.5	525	548	543	545	19	55.8	2.78	2.74	2.89	21	52.5
FAILED	19	47.5	531	521	525	492	15	44.1	2.8	2.73	2.86	19	47.5
TOTAL	40	9.5	528	535	534	520	34	10.3	2.79	2.97	2.88	40	9.3
\$10,000 - \$14,999													
PASSED	34	54.8	542	565	537	556	26	56.5	2.76	2.84	2.76	34	54.8
FAILED	28	45.1	489	530	506	496	20	43.4	2.65	2.90	2.80	28	45.1
TOTAL	62	14.7	518	549	523	529	46	14.0	2.73	2.86	2.78	62	14.4
\$15,000 - \$19,999													
PASSED	25	62.5	575	591	562	563	20	58.8	2.70	2.90	2.80	25	62.5
FAILED	15	37.5	541	522	521	513	14	41.1	2.57	3.07	2.78	15	37.5
TOTAL	40	9.5	562	565	546	544	34	10.3	2.67	3.00	2.79	40	9.3
\$20,000 OR MORE													
PASSED	79	64.2	569	580	569	556	63	65.3	2.66	2.95	2.80	79	64.2
FAILED	44	35.7	525	552	530	522	36	34.6	2.63	2.86	2.72	44	35.7
TOTAL	123	29.2	553	570	555	544	104	31.7	2.66	2.92	2.78	123	29.6
NO RESPONSE													
PASSED	78	55.7	539	572	543	544	59	61.4	2.62	2.89	2.76	83	55.7
FAILED	62	44.2	507	545	517	499	37	38.5	2.48	2.86	2.70	66	44.3
TOTAL	140	33.2	525	560	531	524	96	29.2	2.58	2.88	2.75	149	34.6
TOTAL													
PASSED	246	58.4	553	575	552	552	200	60.9	2.68	2.92	2.80	251	58.3
FAILED	175	41.5	513	538	517	501	128	39.0	2.63	2.90	2.76	179	41.6
TOTAL	421	100.0	536	560	538	531	328	100.0	2.66	2.91	2.78	430	100.0

## 5. Father's Occupation

Nearly three-fourths (72.8 percent) of the COTRANS candidates came from "Physician," "Other Health Occupation," "Other Professional," and "Owner, Manager, Administrator (Non-Farm)," backgrounds (Table 28). Physicians (19.7 percent) and other professional fathers (24.6 percent) made up more than two-fifths (44.3 percent) of the group.

A comparison of proportions per category between the COTRANS group and the 1973-74 applicant pool for U.S. medical schools yields interesting findings. The COTRANS group, for example, reported 19.7 percent physician fathers, while the 1973-74 applicant pool reported 12 percent. Proportions for "Other Health Occupations" (12.6 versus 4.2 percent) were also larger for the COTRANS group, but the proportions for "Other Profession" (24.6 versus 25.0 percent) were nearly equal. The differences observed for "Owner, Manager, Administrator (Non-Farm)" and "Craftsman, Skilled Worker" showed smaller percentages for the COTRANS candidates than for the 1973-74 applicant pool.

In testing the entire distributions by father's occupation, the chi square yielded a significant ( $p < .01$ ) difference of 95.59 with 7 degrees of freedom. Focusing on the three largest categories ("Physician," "Other Profession," and "Owner, Manager, Administrator (Non-Farm)"), the chi square showed a significant difference of 16.75 (2df),  $p < .01$ , in the COTRANS and the U.S. medical school applicant distributions.

Narrowing the focus to physician fathers versus all other categories, the chi square test yielded a difference of 17.50 (1df), which was significant at the .01 level. Thus, a distinct difference exists between the proportions of physician fathers in the two distributions.

Candidates with fathers employed in health and other professions all achieved Part I, NBME pass rates above 60.0 percent, while 55.0 percent of the "Owner, Manager, Administrator (Non-Farm)" category passed (Table 29). Pass rates for other occupational groups were: "Clerical or Sales Worker" (36.0 percent), and "Craftsman, Skilled Worker" (56.2 percent). The last two percentages should be viewed with caution, since there were fewer than 10 passing examinees per group.



TABLE 28

Comparison of 1975 COTRANS-Sponsored Examinees  
With Applicants to the U.S. Medical Schools, 1973-74 First-Year Class  
By Percentage of Total per Category for Father's Occupation

Category	1975 COTRANS-Candidates			1973-74 U.S. Medical School Applicants		
	Number	Percent	% Responses N=309	Number	Percent	% Responses N=34,523
Total	430	100.0	100.0	40,503	100.0	100.0
Physician	61	14.1	19.7	4,130	10.2	12.0
Other Health Occupation	39	9.0	12.6	1,465	3.6	4.2
Other Profession	76	17.6	24.6	8,638	21.3	25.0
Owner, Manager, Administrator (Non-Farm)	49	11.4	15.9	6,939	17.1	20.1
Clerical or Sales Worker	25	5.8	8.1	2,641	6.5	7.6
Craftsman, Skilled Worker	16	3.7	5.2	3,980	9.8	11.5
Unskilled Worker (Non-Farm)	3	0.7	1.0	1,802	4.4	5.2
Farmer or Farm Worker	16	3.7	5.1	1,062	2.6	3.1
Homemaker	0	0.0	0.0	35	0.0	.1
Other	24	5.5	7.8	3,831	9.5	11.1
No Response	121	28.1	---	5,983	14.7	---

Chi square for entire table = 95.59 (7df\*),  $p < .01$ .

\*(The 10 categories shown were reduced to 8 for the chi square calculation.)

TABLE 29

## MCAT Scores and Undergraduate College Grades of COTRANS-Sponsored Examinees

By Father's Occupation and by Pass/Fail Status, Part I of the 1975 NBME Examinations

Examinees by Father's Occupation	No. with MCATS	%	Mean MCAT Scores				No. with GPAs	%	Mean UG GPAs			Total Number	%
			VER	QUA	GEN	SCI			BCPM	AO	TOTAL		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
PHYSICIAN													
PASSED			575	575	578	545	33	63.4	2.50	2.90	2.75	39	63.9
FAILED			530	523	519	511	17	36.5	2.63	2.84	2.68	22	36.0
TOTAL	51	100.0	559	556	557	533	52	15.8	2.61	2.88	2.75	61	14.1
OTHER HEALTH OCCUPATION													
PASSED	25	64.1	572	577	580	557	23	63.0	2.65	2.95	2.82	25	64.1
FAILED	14	35.9	505	562	510	500	13	36.1	2.61	2.92	2.76	14	35.9
TOTAL	39	100.0	548	572	555	542	36	100.0	2.66	2.97	2.83	39	100.0
OTHER PROFESSION													
PASSED	51	67.1	560	590	553	572	44	57.6	2.72	2.97	2.84	51	67.1
FAILED	25	32.8	508	540	509	485	21	32.3	2.61	2.85	2.71	25	32.8
TOTAL	76	100.0	543	574	539	543	65	19.8	2.70	2.93	2.80	76	17.6
OWNER, MANAGER, ADMINISTRATOR													
ADMINISTRATOR (NON-FARM)													
PASSED	27	55.1	540	558	543	558	23	56.1	2.65	2.95	2.91	27	55.1
FAILED	22	44.9	519	558	521	520	18	43.9	2.61	2.83	2.77	22	44.9
TOTAL	49	100.0	530	558	533	545	41	100.0	2.66	2.92	2.95	49	11.6
CLERICAL OR SALES WORKER													
PASSED	9	36.0	533	530	550	525	9	40.9	2.66	2.66	2.66	9	36.0
FAILED	16	64.0	496	526	508	475	13	59.0	2.53	2.77	2.61	13	54.0
TOTAL	25	100.0	509	531	523	506	22	100.0	2.59	2.72	2.68	25	54.8
CRAFTSMAN, SKILLED WORKER													
PASSED	9	56.2	496	537	506	555	5	50.0	2.66	3.00	2.83	9	56.2
FAILED	7	43.7	520	457	503	453	6	50.0	2.50	2.83	2.66	7	43.7
TOTAL	16	100.0	506	502	505	516	11	100.0	2.66	2.91	2.75	16	34.7
UNSKILLED WORKER													
(NON-FARM)													
PASSED	3	100.0	568	648	611	618	2	100.0	2.50	2.50	2.50	3	100.0
FAILED	0	0.0	000	000	000	000	0	0.0	0.00	0.00	0.00	0	0.0
TOTAL	3	100.0	568	648	611	618	2	100.0	2.50	2.50	2.50	3	100.0
FARMER OR FARM WORKER													
PASSED	11	68.7	522	593	522	480	7	77.7	2.57	2.85	2.71	11	68.7
FAILED	5	31.2	507	535	533	453	2	22.2	2.50	3.00	3.00	5	31.2
TOTAL	16	100.0	517	577	525	478	9	100.0	2.66	3.00	2.77	16	34.7

TABLE 29 (Continued)

Examinees by Father's Occupation	No. with MCATS	% with MCATS	Mean MCAT Scores				No. with GPAs	% with GPAs	Mean UG GPAs			Total Number	%
			VER	QUA	GEN	SCI			BCPM	AO	TOTAL		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
HOMEMAKER													
PASSED	0	0.0	000	000	000	000	0	0.0	0.00	0.00	0.00	0	0.0
FAILED	0	0.0	000	000	000	000	0	0.0	0.00	0.00	0.00	0	0.0
TOTAL	0	0.0	000	000	000	000	0	0.0	0.00	0.00	0.00	0	0.0
OTHER													
PASSED	12	50.0	556	565	510	542	11	55.0	2.63	2.72	2.63	12	50.0
FAILED	12	50.0	509	533	524	503	9	45.0	2.77	3.11	2.98	12	50.0
TOTAL	24	5.7	523	549	517	522	20	5.1	2.70	2.90	2.80	24	5.6
NO RESPONSE													
PASSED	60	53.5	546	577	546	544	42	50.8	2.52	2.85	2.69	65	53.7
FAILED	52	46.4	515	543	523	506	27	59.1	2.55	2.92	2.77	55	46.2
TOTAL	112	25.6	532	561	535	526	69	21.0	2.53	2.98	2.72	121	23.1
TOTAL													
PASSED	246	58.4	551	575	552	552	200	50.9	2.68	2.92	2.80	251	58.3
FAILED	175	41.5	513	538	517	501	128	39.0	2.63	2.90	2.76	179	41.6
TOTAL	421	100.0	536	560	538	531	328	100.0	2.66	2.91	2.78	430	100.0

-50-

## E. Career Plans

### 1. Career Activity Plans

At the time the MCAT questionnaire was completed, in 1971 or 1972, COTRANS candidates indicated what they envisioned for their ultimate careers upon completion of medical studies. Of the categories specified for Career Activity Plans, 31.8 percent selected "General Practice,"\* 34.2 percent chose "Specialty Practice," 1.8 percent opted for "Research and/or Teaching," 20.2 percent anticipated a "Combination of Specialty Practice, Research, and/or Teaching," and 10.0 percent were "Undecided" (Table 30).

Proportions per Career Activity Plans category of the 1975 COTRANS group showed some differences from the total 1973-74 applicant pool for U.S. medical schools. "Specialty Practice" was the highest category (34.2 percent) for COTRANS candidates, while "General Practice" (36.1 percent) was most popular with the 1973-74 Applicant Pool.

Less interest in "General Practice" and in "Research and/or Teaching" was shown by COTRANS candidates, but the "Undecided" proportions were nearly parallel. The chi square test for the entire distribution showed a difference of 11.85 (5df), that was significant at the .05 level.

Part I, NBME pass rates were above 50 percent for all groups, but above 60 percent for those who chose "Specialty Practice," "Research and/or Teaching" or the "Combination of Specialty Practice, Research, and/or Teaching" (Table 31).

### 2. Specialization Plans

The wide variety of 11 Medical Specialty categories is largely responsible for the division of the 1975 COTRANS group into proportions that are mostly below 15 percent (Table 32). In order of percentages, COTRANS-sponsored examinees selected "Surgery or Surgical Specialty," 15.6; "Family Practice," 12.6; "Pediatrics," 10.8; "Internal Medicine," 8.7; "Plan to Specialize - Area Unknown," 8.4; and "Public Health, Community Medicine," 7.8. All other specialty categories accounted for smaller proportions, and 12.6 percent were "Undecided."

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\* "General Practice" may have included "Primary Care" on 1972 MCAT Questionnaires. This category was changed to "General/Primary Care Practice" on 1976 MCAT Questionnaires.

TABLE 30  
Comparison of 1975 COTRANS-Sponsored Examinees  
With Applicants to U.S. Medical Schools, 1973-74 First-Year Class  
By Percentage of Total per Category for Career Activity Plans

Category	1975 COTRANS-Candidates			1973-74 U.S. Medical School Applicants		
	Number	Percent	% Responses N=336	Number	Percent	% Responses N=36,634
Total	430	100.0	100.0	40,506	100.0	100.0
General Practice	107	24.8	31.8	13,213	32.6	36.1
Specialty Practice	115	26.7	34.2	10,285	25.3	28.1
Research and/or Teaching	6	1.4	1.8	1,603	3.9	4.4
Combination of Specialty Practice, Research, and/or Teaching	58	13.5	20.2	7,006	17.3	19.1
Other	6	1.4	1.8	544	1.3	1.5
Undecided	34	7.9	10.0	3,983	9.8	10.9
No Response	94	21.8	---	3,872	9.5	---

Chi square for entire table = 11.85 (5df),  $p < .05$ .

TABLE 31

## MCAT Scores and Undergraduate College Grades of COTRANS-Sponsored Examinees

By Career Activity Plans and by Pass/Fail Status, Part I of the 1975 NBME Examinations

Examinees by Career Activity Plans	No. with MCATs	%	Mean MCAT Scores				No. with GPAs	%	Mean UG GPAs			Total Number	%
			VER	QUA	GEN	SCI			BCPM	AC	TOTL		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
GENERAL PRACTICE													
PASSED	56	52.3	541	570	54	544	47	51.2	2.63	2.77	2.79	56	52.3
FAILED	51	47.6	517	532	513	514	43	47.7	2.52	2.90	2.74	51	47.6
TOTAL	107	25.4	527	552	537	524	90	49.4	2.58	2.90	2.76	107	25.4
SPECIALTY PRACTICE													
PASSED	72	62.6	552	564	554	546	63	67.6	2.73	2.93	2.84	72	62.6
FAILED	43	37.3	493	523	507	486	31	34.3	2.67	2.93	2.81	43	37.3
TOTAL	115	27.3	527	547	536	514	94	53.2	2.71	2.94	2.83	115	27.3
RESEARCH AND/OR TEACHING													
PASSED	4	66.6	552	635	517	557	3	75.0	2.60	2.77	2.68	4	66.6
FAILED	2	33.3	507	590	580	445	1	25.0	3.00	2.77	2.70	2	33.3
TOTAL	6	1.4	516	620	545	540	4	5.0	2.80	2.77	2.69	6	1.4
COMBINATION OF SPECIALTY PRACTICE, RESEARCH, AND/OR TEACHING													
PASSED	44	64.7	567	515	573	571	4	10.0	2.70	2.90	2.80	44	64.7
FAILED	24	35.2	510	551	536	510	17	25.0	2.67	2.77	2.64	24	35.2
TOTAL	68	16.3	554	568	560	541	21	17.3	2.68	2.84	2.72	68	16.3
OTHER													
PASSED	5	62.5	513	513	513	501	5	62.5	2.60	2.70	2.60	5	62.5
FAILED	1	12.5	525	525	525	494	1	12.5	2.50	2.70	2.60	1	12.5
TOTAL	6	1.4	511	513	513	513	6	7.5	2.55	2.70	2.60	6	1.4
UNDECIDED													
PASSED	14	50.0	513	513	541	513	14	50.0	2.71	2.71	2.71	14	50.0
FAILED	14	50.0	554	513	524	514	14	50.0	2.73	2.71	2.71	14	50.0
TOTAL	28	6.7	564	513	533	513	28	6.7	2.72	2.71	2.71	28	6.7
NO RESPONSE													
PASSED	47	51.1	37	577	542	513	47	51.1	2.61	2.71	2.64	47	51.1
FAILED	37	48.7	111	544	520	447	37	48.7	2.64	2.71	2.64	37	48.7
TOTAL	84	20.2	524	563	531	513	84	20.2	2.63	2.71	2.64	84	20.2
TOTAL													
PASSED	155	54.4	567	575	551	537	155	54.4	2.68	2.82	2.80	155	54.4
FAILED	107	41.5	517	532	517	514	107	41.5	2.55	2.90	2.74	107	41.5
TOTAL	321	20.0	564	567	534	531	321	20.0	2.63	2.86	2.77	321	20.0

TABLE 32

Comparison of 1975 COTRANS-Sponsored Examinees  
With Applicants to U.S. Medical Schools, 1973-74 First-Year Class  
By Percentage of Total per Category for Specialization Plans

Category	1975 COTRANS-Candidates			1973-74 U.S. Medical School Applicants		
	Number	Percent	% Responses N=334	Number	Percent	% Responses N=3,317
Total	430	100.0	100.0	40,506	100.0	100.0
Basic Medical Science	6	1.4	1.8	1,165	2.9	3.2
Family Practice	42	9.7	12.6	7,917	19.5	21.7
Internal Medicine	27	6.7	8.7	2,631	6.5	7.2
Obstetrics/ Gynecology	18	4.1	5.4	1,369	3.3	3.8
Pediatrics	36	8.3	10.8	3,116	7.6	8.5
Psychiatry	20	4.6	6.0	1,555	3.8	4.3
Public Health, Community Medicine	25	6.0	7.8	2,008	4.9	5.5
Surgery or Surgical Specialty	52	12.0	15.6	4,947	12.2	13.6
Other Known Specialty	16	3.7	4.8	1,870	4.6	5.1
Plan to Specialize --Area Unknown	38	6.5	8.4	3,067	7.5	8.4
Do not plan to Specialize	19	4.4	5.7	2,266	5.5	6.2
Undecided	42	9.7	12.6	4,585	11.3	12.6
No Response	96	22.3	--	4,010	9.9	--

Chi square for entire table = 26.19 (11df),  $p < .01$ .

Comparative specialization plans of all applicants for the 1973-74 first-year class of U.S. medical schools show sizable differences in two categories (Table 32). COTRANS candidates were less interested in "Family Practice" but more interested (by 2 percent) in "Surgery or Surgical Specialty," "Pediatrics," and "Public Health, Community Medicine" than the 1973-74 applicant pool. There were less than 2 percent differences for most of the other categories, and none for those who "Plan to Specialize" or were "Undecided." The chi square test showed a difference of 26.19 (11df) in the two distributions that was significant at the .01 level.

Part I, NBME pass rates for the 11 specialty categories were 60 percent or better for six specialty options ("Basic Medical Science," "Internal Medicine," "Psychiatry," "Public Health, Community Medicine," "Other Known Specialty," and "Do Not Plan to Specialize") and above 50 percent for two ("Pediatrics" and "Surgery or Surgical Specialty"). The highest pass rate, 75.0 percent, was achieved by the 21 COTRANS candidates with undifferentiated plans to specialize. The lowest pass rates, 50.0 percent, were recorded for students interested in "Family Practice" and "Obstetrics/Gynecology" (Table 33).

### 3. Expected Character of Medical Practice

Of the nine types of medical practice choices provided, "Individual," (27.7 percent), "Hospital-Based" (20.2 percent), and "Partnership" (14.6 percent) were the most popular choices of over three-fifths of the COTRANS group (Table 34). Only one candidate indicated an interest in "Medical Administration," while 61 (18.2 percent) candidates responded as "Undecided."

In contrast to most of the other career variables, there were several significant differences in proportions of choices for the various categories of Expected Character of Medical Practice between COTRANS candidates and the 1973-74 applicant pool. Of the COTRANS students, 27.7 percent expressed an interest in the "Individual Practice" category, as compared to 18.5 percent of the 1973-74 applicant pool. Fewer COTRANS-sponsored examinees, on the other hand, indicated "Partnership," "Private Group," "Hospital-Based Group" and "Full-Time Teaching and/or Research," but more COTRANS candidates marked the "Public Health Community Medicine" category. "Individual Practice" was clearly the preferred type of practice for the 1975 COTRANS group. The overall difference in the two distributions amounted to a chi square value of 31.93 (7df) that was significant at the .01 level.



TABLE 33

MCAT Scores and Undergraduate College Grades of COTRANS-Sponsored Examinees  
By Specialization Plans and by Pass/Fail Status, Part I of the 1975 NBME Examinations

Examinees by Specialization Plans	No. with MCATS	% with MCATS	Mean MCAT Scores				No. with GPAs	% with GPAs	Mean UG GPAs			Total Number	%
			VER	QUA	GEN	SCI			BCPM	AO	TOTAL		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
BASIC MEDICAL SCIENCE													
PASSED	4	66.6	570	550	615	555	4	80.0	2.50	2.75	2.50	4	66.6
FAILED	2	33.3	600	590	605	495	1	20.0	2.00	2.00	2.00	2	33.3
TOTAL	6	1.4	580	563	611	535	5	1.5	2.40	2.60	2.60	6	1.4
FAMILY PRACTICE													
PASSED	21	50.0	525	564	539	541	20	54.0	2.65	3.05	2.85	21	50.0
FAILED	21	50.0	510	504	490	503	17	45.9	2.52	2.76	2.58	21	50.0
TOTAL	42	9.9	517	534	514	522	37	11.2	2.59	2.91	2.75	42	9.7
INTERNAL MEDICINE													
PASSED	19	65.5	573	590	568	581	17	68.0	2.82	2.82	2.76	19	65.5
FAILED	10	34.4	509	540	519	501	8	32.0	2.25	2.62	2.37	10	34.4
TOTAL	29	6.8	551	572	551	553	25	7.6	2.64	2.76	2.68	29	6.7
OBSTETRICS/GYNECOLOGY													
PASSED	9	50.0	536	550	483	502	6	42.8	2.66	3.00	2.83	9	50.0
FAILED	9	50.0	482	516	482	460	8	57.1	2.75	3.12	3.00	9	50.0
TOTAL	18	4.2	494	533	483	481	14	4.2	2.78	3.07	2.92	18	4.1
PEDIATRICS													
PASSED	19	52.7	555	572	552	542	18	58.0	2.55	2.88	2.72	19	52.7
FAILED	17	47.2	500	547	521	502	13	41.9	2.76	2.92	2.84	17	47.2
TOTAL	36	8.5	529	560	538	523	31	9.4	2.64	2.93	2.77	36	8.3
PSYCHIATRY													
PASSED	12	60.0	619	555	596	577	11	61.1	2.54	3.09	2.81	12	60.0
FAILED	8	40.0	515	578	567	520	7	38.8	2.71	2.35	2.85	8	40.0
TOTAL	20	4.7	577	564	585	554	18	5.4	2.61	3.05	2.88	20	4.6
PUBLIC HEALTH, COMMUNITY MEDICINE													
PASSED	16	61.5	569	566	575	551	15	58.1	2.73	2.73	2.73	16	61.5
FAILED	10	38.4	514	542	525	490	7	31.8	2.57	3.00	2.85	10	38.4
TOTAL	26	6.1	548	556	555	527	22	6.7	2.68	2.86	2.77	26	6.0
SURGERY OR SURGICAL SPECIALTY													
PASSED	28	53.8	519	568	536	533	22	53.6	2.77	2.86	2.77	28	53.8
FAILED	24	46.1	503	536	511	504	19	46.3	2.52	2.73	2.63	24	46.1
TOTAL	52	12.3	511	553	525	520	41	12.5	2.65	2.80	2.73	52	12.0

- 65 -

TABLE 33 (Continued)

Examinees by Specialization Plans  (1)	No. with MCATS  (2)	% with MCATS  (3)	Mean MCAT Scores				No. with GPAs  (8)	% with GPAs  (9)	Mean UG GPAs			Total Number  (13)	%
			VER	QUA	GEN	SCI			BCPM	AO	TOTAL		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
OTHER KNOWN SPECIALTY													
PASSED	11	68.7	556	579	527	582	10	75.9	2.70	2.90	2.90	11	68.7
FAILED	5	31.2	451	491	487	489	3	23.0	2.33	2.33	2.33	5	31.2
TOTAL	16	3.8	523	551	515	553	13	3.9	2.69	2.84	2.76	16	3.7
PLAN TO SPECIALIZE - AREA UNKNOWN													
PASSED	21	75.0	579	591	585	571	19	79.1	2.73	2.89	2.78	21	75.0
FAILED	7	25.0	507	563	536	552	5	20.8	2.80	3.00	3.00	7	25.0
TOTAL	28	6.6	561	584	573	566	24	7.3	2.75	2.95	2.83	28	6.5
DO NOT PLAN TO SPECIALIZE													
PASSED	13	68.4	568	550	555	556	8	57.1	2.37	2.75	2.50	13	68.4
FAILED	6	31.5	540	516	518	468	6	42.8	2.83	3.00	2.83	6	31.5
TOTAL	19	4.5	559	545	543	528	14	4.2	2.57	2.85	2.71	19	4.4
UNDECIDED													
PASSED	25	59.5	575	603	557	572	20	57.1	2.75	3.00	2.85	25	59.5
FAILED	17	40.4	561	537	530	515	15	42.8	2.80	3.00	2.86	17	40.4
TOTAL	42	9.9	569	576	546	549	35	10.6	2.77	3.00	2.88	42	9.7
NO-RESPONSE													
PASSED	48	55.1	534	578	540	538	30	61.2	2.50	2.83	2.66	53	55.7
FAILED	39	44.8	513	550	521	498	19	38.7	2.47	2.84	2.68	43	44.7
TOTAL	87	20.5	524	566	532	520	49	14.9	2.48	2.83	2.67	96	22.3
TOTAL													
PASSED	246	58.4	553	575	552	552	200	60.9	2.58	2.92	2.80	251	58.3
FAILED	175	41.5	513	538	517	501	128	39.0	2.63	2.90	2.76	179	41.6
TOTAL	421	100.0	536	560	538	531	328	100.0	2.66	2.91	2.78	430	100.0

-66-

TABLE 34

Comparison of 1975 COTRANS-Sponsored Examinees  
With Applicants to U.S. Medical Schools, 1973-74 First-Year Class  
By Percentage of Total per Category for Expected Character of Medical Practice

Category	1975 COTRANS-Candidates			1973-74 U.S. Medical School Applicants		
	Number	Percent	% Responses N=336	Number	Percent	% Responses N=36,574
Total	430	100.0	100.0	40,506	100.0	100.0
Individual	93	21.6	27.7	6,771	16.7	18.5
Partnership	49	11.4	14.6	6,633	16.3	16.4
Private Group	23	5.3	6.8	4,002	9.8	10.9
Hospital-Based Group	68	15.8	20.2	8,146	20.1	22.3
Full-Time Teaching and/or Research	6	1.4	1.8	1,713	4.2	4.7
Public Health	29	6.7	8.6	2,476	6.1	6.8
Industrial	0	0.0	0.0	22	0.0	.1
Medical Administration	1	.2	.3	94	.2	.3
Other	6	1.4	1.8	816	2.0	2.2
Undecided	61	14.1	18.2	5,901	14.5	16.1
No Response	94	21.8	---	3,932	9.7	---

Chi square for entire table = 31.93 (7df),  $p < .01$ .

(The 10 categories shown were reduced to 8 for the chi square calculation.)

Part I, NBME pass rates were above 50 percent for all categories except for the 42.8 percent of the COTRANS examinees interested in an eventual "Partnership" type of practice. The highest pass rates, 67.6 and 67.2 percent were attained by those indicating possible future work in a "Hospital-Based Group," and those who were "Undecided" about the expected character of their medical practice. The only 100 percent rate applied to the single "Medical Administration" respondent who passed (Table 35).

TABLE 35

## MCAT Scores and Undergraduate College Grades of COTRANS-Sponsored Examinees

By Expected Character of Medical Practice and by Pass/Fail Status, Part I of the 1975 NBME Examinations

Examinees by Expected Character of Medical Practice	No. with MCATS	%	Mean MCAT Scores				No. with GPAs	%	Mean UG GPAs			Total Number	%
			VER	QUA	GEN	SCI			BCPM	AO	TOTAL		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
INDIVIDUAL													
PASSED	53	56.9	566	551	560	551	46	56.1	2.65	2.97	2.80	53	56.9
FAILED	40	43.0	518	545	529	517	36	43.9	2.61	2.88	2.75	40	43.0
TOTAL	93	22.0	545	548	546	536	82	25.0	2.64	2.93	2.78	93	21.6
PARTNERSHIP													
PASSED	21	42.8	512	542	498	530	15	39.4	2.80	2.86	2.80	21	42.8
FAILED	28	57.1	508	513	506	488	23	60.5	2.73	2.82	2.73	28	57.1
TOTAL	49	11.6	510	529	502	506	38	11.5	2.76	2.86	2.78	49	11.4
PRIVATE GROUP													
PASSED	13	56.5	558	592	575	561	12	66.6	2.66	2.91	2.75	13	56.5
FAILED	10	43.4	566	511	544	470	6	33.3	2.33	3.00	2.66	10	43.4
TOTAL	23	5.4	561	557	561	521	18	5.4	2.61	2.94	2.77	23	5.3
HOSPITAL BASED GROUP													
PASSED	46	67.6	571	600	574	567	41	69.4	2.70	2.85	2.78	46	67.6
FAILED	22	32.3	490	544	504	508	18	30.5	2.61	3.00	2.77	22	32.3
TOTAL	68	16.1	541	581	551	548	59	17.9	2.67	2.91	2.77	68	15.8
FULL-TIME TEACHING AND/OR RESEARCH													
PASSED	4	66.6	540	582	512	600	3	100.0	2.66	3.00	2.66	4	66.6
FAILED	2	33.3	575	560	595	485	0	0.0	0.00	0.00	0.00	2	33.3
TOTAL	6	1.4	551	575	540	561	3	0.9	2.66	3.00	2.66	6	1.4
PUBLIC HEALTH													
PASSED	18	62.0	548	554	562	528	16	66.6	2.68	2.87	2.81	18	62.0
FAILED	11	37.9	495	569	502	511	8	33.3	2.62	3.00	2.75	11	37.9
TOTAL	29	6.8	528	562	539	522	24	7.3	2.66	2.91	2.83	29	6.7
INDUSTRIAL													
PASSED	0	0.0	000	000	000	000	0	0.0	0.00	0.00	0.00	0	0.0
FAILED	0	0.0	000	000	000	000	0	0.0	0.00	0.00	0.00	0	0.0
TOTAL	0	0.0	000	000	000	000	0	0.0	0.00	0.00	0.00	0	0.0
MEDICAL ADMINISTRATION													
PASSED	1	100.0	505	535	505	545	1	100.0	3.00	3.00	3.00	1	100.0
FAILED	0	0.0	000	000	000	000	0	0.0	0.00	0.00	0.00	0	0.0
TOTAL	1	0.2	505	535	505	545	1	0.3	3.00	3.00	3.00	1	0.2
OTHER													
PASSED	2	33.3	545	580	590	565	2	33.3	2.50	2.50	2.50	2	33.3
FAILED	4	66.6	492	550	472	492	4	66.6	2.75	2.75	2.75	4	66.6
TOTAL	6	1.4	510	560	511	516	6	1.8	2.83	2.83	2.83	6	1.4
UNDETERMINED													
PASSED	41	67.2	558	593	551	569	36	70.5	2.72	2.97	2.86	41	67.2
FAILED	20	32.7	531	522	518	502	15	29.4	2.60	2.86	2.73	20	32.7
TOTAL	61	14.4	549	570	540	547	51	15.5	2.70	2.94	2.82	61	14.1

TABLE 35 (Continued)

Examinees by Expected Character of of Medical Practice  (1)	No. with MCATS  (2)	% with MCATS  (3)	Mean MCAT Scores				No. with GPAs  (8)	% with GPAs  (9)	Mean UG GPAs			Total Number  (13)	%
			VER	QUA	GEN	SCI			BCPM	AO	TOTAL		
			(4)	(5)	(6)	(7)			(10)	(11)	(12)		(14)
NO RESPONSE													
PASSED	47	55.2	537	577	542	537	28	60.8	2.46	2.82	2.64	52	55.3
FAILED	38	44.7	511	540	520	497	18	39.1	2.44	2.83	2.66	42	44.6
TOTAL	85	20.1	525	565	532	519	46	14.0	2.47	2.82	2.67	94	21.9
TOTAL													
PASSED	246	58.4	553	575	552	552	200	60.4	2.68	2.92	2.80	251	58.3
FAILED	175	41.5	513	539	517	501	128	39.0	2.63	2.90	2.76	179	41.6
TOTAL	421	100.0	536	560	538	531	328	100.0	2.66	2.91	2.78	430	100.0

#### IV. SUMMARY AND CONCLUSIONS

This analysis of 1975 COTRANS participants began with a review of their sponsorships for Part I, NBME participation and their advanced standing admissions to U.S. medical schools. It also included a review of their application records from their earlier attempts to gain a first-year place in a U.S. medical school. The discussion then proceeded to their Part I, NBME performance and undergraduate academic backgrounds, while the closing portion covered demographic information and career activity plans.

In summary, the typical 1975 COTRANS-sponsored examinee who passed Part I, NBME had a total score of 489 (14 points below the U.S. candidate mean of 503), was a male and a test repeater. Women accounted for 9 percent of the COTRANS-sponsored examinees and 6 percent of passing COTRANS candidates. There was a 65 percent ratio between the number of passing examinees and the number of individuals admitted to advanced standing by a U.S. medical school.

The undergraduate academic background of passing examinees was characterized by an average MCAT Science score of 553 and an average GPA of 2.81. By type of school control, the typical passing student came from a private college and submitted 11.1 unsuccessful applications to U.S. medical schools for a first-year place in 1973-74.

By demographic background, the average passing candidate was a 26-year old Caucasian male from the state of New York, New Jersey, or California who had obtained his foreign medical education in either Mexico, Belgium, or Italy.

The median parental income of successful examinees was \$19,000 (1970-71 dollar value). Forty-four percent of the 1975 COTRANS participants came from families in the \$20,000 or more income bracket, compared with 33 percent of the 1973-74 applicant pool. There was a 73 percent chance that the father was a professional or owner/manager and a 20 percent chance that the father was a physician.

For the COTRANS participants, "Specialty Practice" and "General Practice" were the preferred general Career Activity choices. "Surgery or Surgical Specialty" and "Family Practice" were the preferred Specialization Plans. The most popular Expected Character of Medical Practice selections were "Individual Practice" and "Hospital-Based Group."

In conclusion, it is evident that even though the academic and/or state of residence characteristics of the 1975 COTRANS participants had not qualified them for admission to the first-year class of a U.S. medical school, more than half of them (57 percent) were successful in passing Part I, NBME after studying medicine abroad. Available data suggest that nearly two-thirds of those who passed the examination were admitted to advanced standing by a medical school in the United States.

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### Glossary

**ADVANCED STANDING ADMISSION** - Admission at any level beyond the first semester of the first-year class in recognition of medical education credits obtained elsewhere and /or qualifying examinations.

**CANDIDATE (REFERENCE) GROUP\*** - Refers to all individuals taking the National Board (NBME) examinations as candidates for credit toward ultimate certification as a Diplomate of the National Board.

**COTRANS** - Coordinated Transfer Application System (a service of the Association of American Medical Colleges).

**COTRANS PARTICIPANT** - Any COTRANS applicant who has been declared eligible for participation in Part I, NBME (National Board of Medical Examiners).

**COTRANS-SPONSORED EXAMINEE** - A COTRANS participant who actually wrote the Part I, NBME Test in either June or September of a given year. Also referred to as a COTRANS candidate.

**DSS REPORT** - Division of Student Studies Technical Report. Usually issued as a separate report to supplement the Annual Applicant Studies published in the Journal of Medical Education.

**GPA/MCAT PROFILE** - Distribution of Applicants and Acceptees by Undergraduate College Grade Point Average (GPA) and by scores on the Medical College Admission Test (MCAT). See Table 20.

**QUADRANT I (GPA 3.0 - 4.0; MCAT 505-795)** - The highest of the four quadrants or major divisions of the grade/score combinations of the GPA/MCAT Profile: I - High Grades/High Scores; II - High Grades/Low Scores; III - Low Grades/Low Scores; IV - Low Grades/High Scores. (See Table 20 of this report.)

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\* The scores of the Candidate Reference Group are standard scores for which the mean is 500 and the standard deviation 100. Candidate performance on the June - September 1975 Part I Exam resulted in a mean total test score of 503 and a standard deviation of 100.

# Appendix: 1975 COTRANS Application

**FORM A**  
**PRINT OR TYPE**

**ASSOCIATION OF AMERICAN MEDICAL COLLEGES**  
Suite 301, 1776 Massachusetts Avenue, N.W., Washington, D.C. 20036  
Coordinated Transfer Application System (202) 466-5104

**COTRANS APPLICATION FOR JUNE AND SEPTEMBER 1975**

- SSN \_\_\_\_\_
- NAME  
LAST \_\_\_\_\_  
FIRST \_\_\_\_\_ MIDDLE INITIAL \_\_\_\_\_ SUFFIX \_\_\_\_\_
- PREFERRED MAILING ADDRESS  
STREET \_\_\_\_\_  
CITY/STATE \_\_\_\_\_  
ZIP CODE \_\_\_\_\_ COUNTRY \_\_\_\_\_ TELEPHONE \_\_\_\_\_ AREA CODE NUMBER \_\_\_\_\_
- PERMANENT ADDRESS FOR MAILING OF NBME SCORES  
STREET \_\_\_\_\_  
CITY/STATE \_\_\_\_\_  
ZIP CODE \_\_\_\_\_ COUNTRY \_\_\_\_\_ TELEPHONE \_\_\_\_\_ AREA CODE NUMBER \_\_\_\_\_
- LEGAL RESIDENCE \_\_\_\_\_ STATE \_\_\_\_\_ & SEX: MALE ( ) FEMALE ( )
- DATE OF BIRTH \_\_\_\_\_ MO. DAY YEAR \_\_\_\_\_  
INSTITUTION \_\_\_\_\_ CAMPUS/LOCATION/STATE \_\_\_\_\_ GRADUATION DATE \_\_\_\_\_ MO. YEAR \_\_\_\_\_
- UNDERGRADUATE COLLEGE \_\_\_\_\_
- UNDERGRADUATE GRADE POINT AVERAGE  
SCIENCE \_\_\_\_\_ NON-SCIENCE \_\_\_\_\_ TOTAL \_\_\_\_\_
- MOST RECENT MEDICAL COLLEGE ADMISSION TEST SCORES  
TEST DATE \_\_\_\_\_ MO. YEAR \_\_\_\_\_  
VERBAL SCORE \_\_\_\_\_ QUANTITATIVE SCORE \_\_\_\_\_  
GENERAL INFORMATION SCORE \_\_\_\_\_ SCIENCE SCORE \_\_\_\_\_
- CURRENT FOREIGN MEDICAL SCHOOL  
INSTITUTION \_\_\_\_\_ COUNTRY \_\_\_\_\_ DATE ENTERED \_\_\_\_\_ MO. YEAR \_\_\_\_\_
- REQUIRED COURSES COMPLETED:  
Anatomy \_\_\_\_\_ Date Taken \_\_\_\_\_ Grade \_\_\_\_\_  
Biochemistry \_\_\_\_\_  
Physiology \_\_\_\_\_
- YEAR OF ENROLLMENT IN FOREIGN MEDICAL SCHOOL: (Please Circle) 1 2 3 4 5 6
- HAVE YOU BEEN PREVIOUSLY SPONSORED BY COTRANS? Yes ☐ No ☐ If Yes, State Year \_\_\_\_\_
- HAVE YOU PREVIOUSLY TAKEN PART 1, NBME? Yes ☐ No ☐ If Yes, State Year \_\_\_\_\_
- TEST DATE REQUESTED: JUNE EXAM ☐ SEPTEMBER EXAM ☐

**COTRANS USE**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Certification**

I have read and understand the instructions and other information in the COTRANS Information Sheet. I certify that the information submitted in these application materials is complete and correct to the best of my knowledge.

Date: \_\_\_\_\_ Signature: \_\_\_\_\_

Allow ample time for mail delivery prior to deadlines. April 15 is firm deadline for receipt of all correct and complete materials at COTRANS for Part I NBME June, 1975. July 9 is firm deadline for receipt of all correct and complete materials at COTRANS for Part I NBME September, 1975.

MO. 11 - REV. 1/75